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**EQUIVALENT ROUTE WINDS FOR HELICOPTER
AIR ROUTES AT HEIGHTS OF 5,000, 10,000 AND
18,000 FEET. VOLUME II**

D. G. Brown, et al

**Boeing Vertol Company
Philadelphia, Pennsylvania**

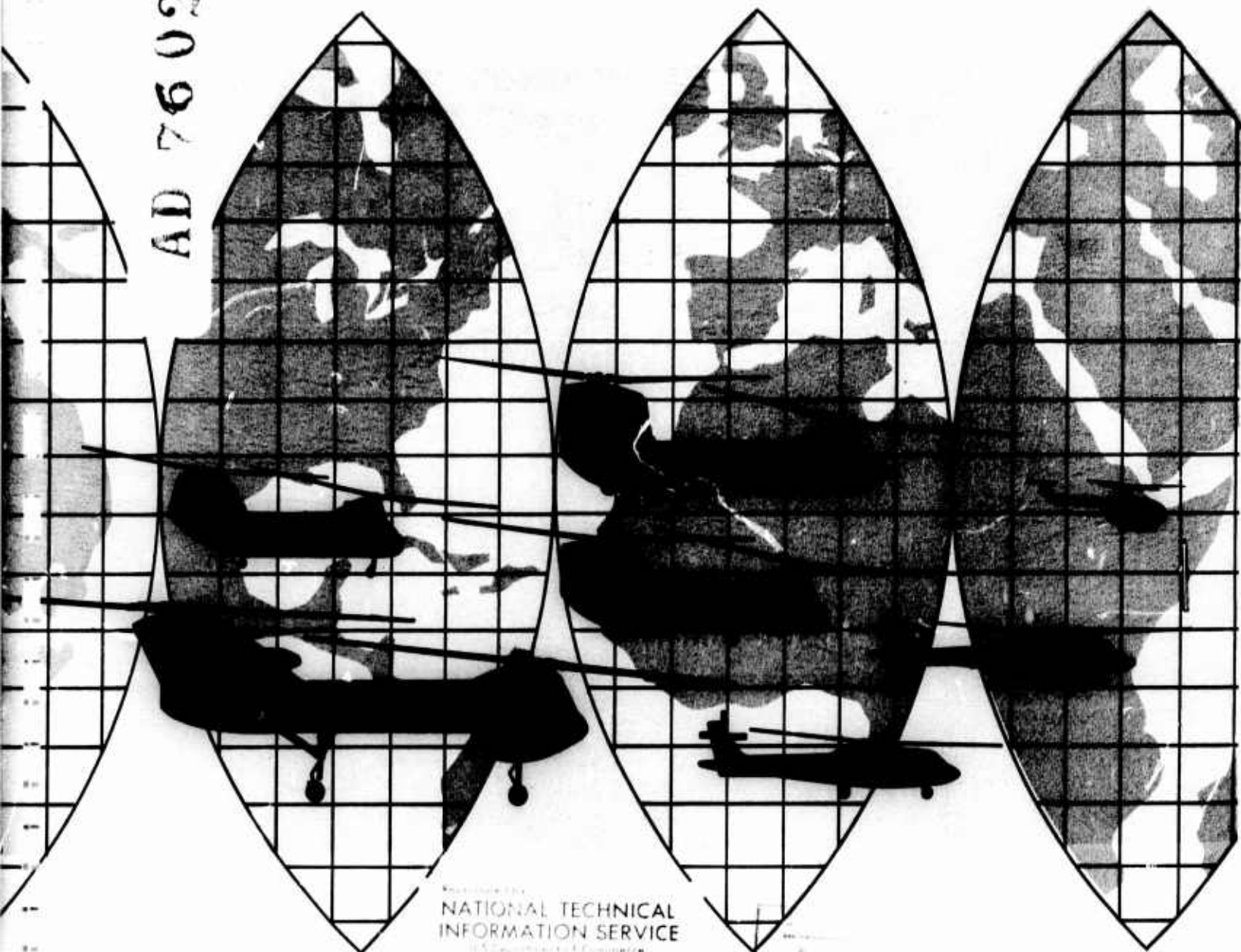
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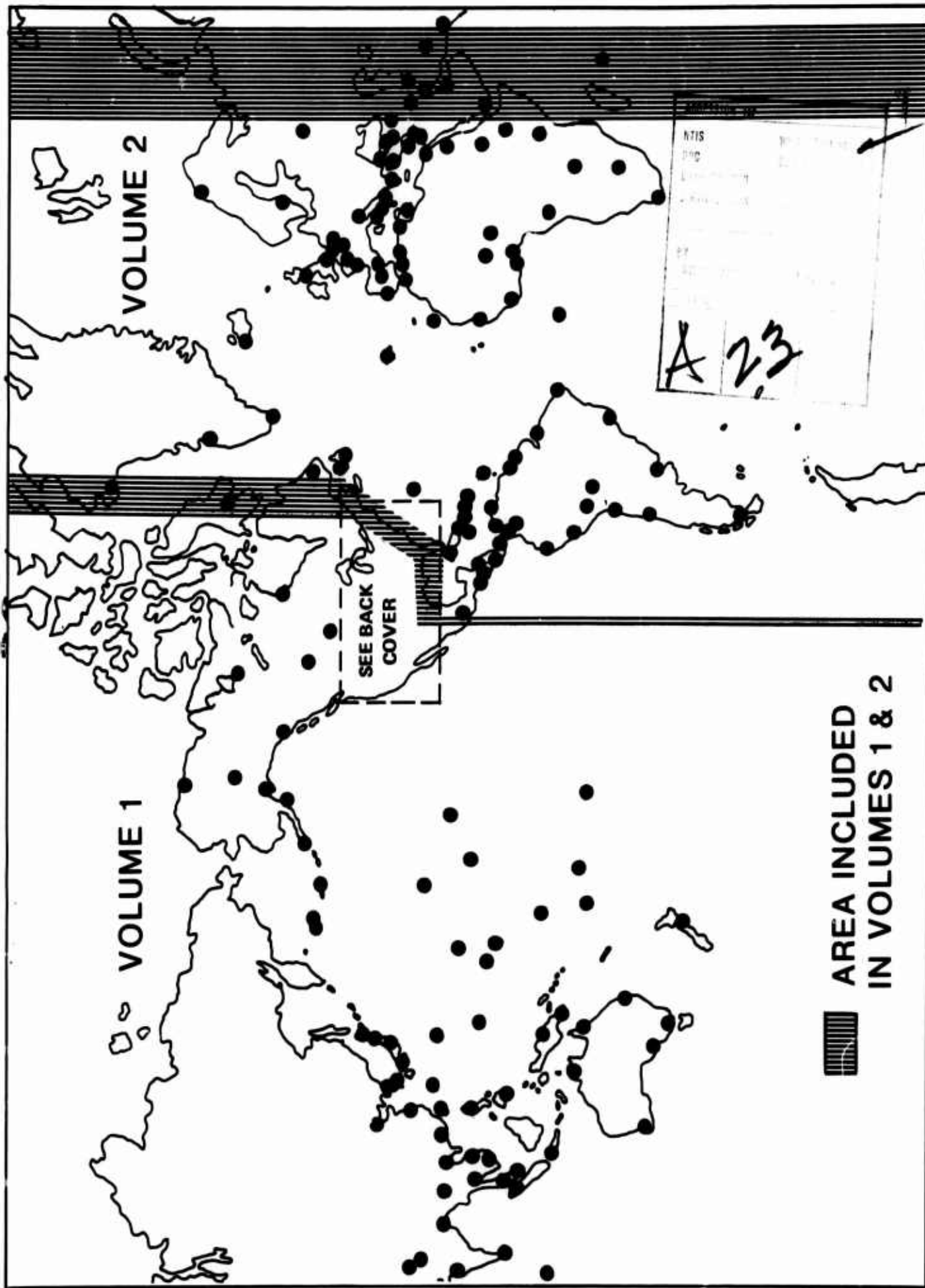
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VOLUME TWO

258



EQUIVALENT ROUTE WINDS FOR HELICOPTER AIR ROUTES

At Heights of 5,000, 10,000, and 18,000 Feet

Volume II

By

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APRIL 1973

THE BOEING VERTOL COMPANY
PHILADELPHIA, PA.

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ERRATA SHEET
FOR DOCUMENT D210-10600-2

Sheet III, Line 2 reads FORWARD - should read FOREWARD

Sheet VII, Title reads FORWARD - should read FOREWARD

Sheet 8. Para. 4.3, Equation (6) reads:

$$D' \approx 1/2 (D-R) + \frac{62.5}{A} (D+R)$$

Should read:

$$D' \approx 1/2 (D-r) + \frac{60.0}{A} (D+R)$$

Sheet 8. Para. 4.3, Equation (6) reads:

$$R' \approx -1/2 (D-R) + \frac{62.5}{A}$$

Should read:

$$R' \approx -1/2 (D-R) + \frac{60.0}{A} (D+R)$$

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ABSTRACT

Equivalent headwinds or equivalent winds are computed using Sawyer's method for approximately 4400 strategic world air routes contained in Volumes I & II. The seasonal mean equivalent wind and its standard deviation and the annual 50-, 75-, and 85- percent reliability equivalent winds are tabulated. Route winds are computed for the 5000-, 10,000-, and 18,000 foot levels. An IBM 360/65 program was used to compute the equivalent winds. Input data for the program consist, for each level, of a grid composed of the mean vector wind and the standard vector deviation at the intersection of each 5° of latitude with each 10° of longitude between 60°S and 60°N and at the intersection of each 5° of latitude and each 20° of longitude south and north of 60°S and 60°N respectively. In addition to the equivalent winds, great circle distances are computed and tabulated for each route.

FORWARD

Ten years ago, The Boeing Company published documents on equivalent route winds for upper altitudes for domestic, international and military air routes for use in the airline industry: "Equivalent Winds for North American Air Routes," D6-9176; "Equivalent Winds for World Air Routes," D6-9177; and "Great Circle Equivalent Route Winds for Military Application," D6-9175. Since then, the helicopter industry has had a need for lower altitude wind data for helicopter routes and speeds.

Tables of winds for the lower altitudes were prepared and the computer program used for the earlier documents was modified to incorporate minor improvements in technique in order to correct inaccuracies which could occur for lower speed aircraft and to operate on the IBM 360/65 system.

Airfield bases listed in this document are only a sample of the total number available and are not chosen on major importance. It should be noted that one airfield may represent other stations within a radius of 50 miles, since the difference in the azimuths of the flight routes would be nominal, thus reflecting little if any changes in the calculated results of equivalent headwinds. Additional air routes may be requested by writing to the Boeing Vertol Company in care of the author.

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EQUIVALENT WINDS FOR HELICOPTER AIR ROUTES
AT HEIGHTS OF 5,000, 10,000 and 18,000 FEET

1.0 INTRODUCTION

The increasing ability (usually with aerial refueling and/or auxiliary tanks) for helicopters to deploy over long distances has established a requirement for route wind statistics with which to make long-term estimates of the economic and strategic capabilities of these aircraft. To meet this need for route-wind data, Boeing-Vertol analysts have computed seasonal and annual equivalent winds for principal air routes.

2.0 DEFINITIONS

2.1 Equivalent Route Wind

The equivalent wind for an air route may be defined as a uniform wind, which when directed along the track at all points, results in the same average ground speed as that actually attained. Alternately, the equivalent route wind is the difference between the average airspeed and the average groundspeed throughout the flight.

2.2 Reliability Equivalent Route Wind

The reliability equivalent wind is the equivalent headwind which is not exceeded (a route wind which can be relied upon) a given percent of occasions or time during a given period.

3.0 COMPUTATIONS

3.1 Equations

3.1.1. Equivalent Route Wind

Sawyer's theory of equivalent headwinds has been applied extensively to the computation of equivalent route winds ¹⁻⁹. This method involves use of the mean vector wind and the standard vector deviation, two parameters which completely define the circular normal distribution of winds generally found in the free atmosphere. Charts and tabulations of the mean vector wind and the standard vector deviation are available in many meteorological publications 10-19.

The principal assumptions of Sawyer's theory are (1) the wind speed does not exceed the speed of the aircraft and (2) the distribution of winds in the free atmosphere during a given season can be approximated by the circular normal distribution. Based on these and other assumptions, the basic equation for the average equivalent headwind, EW, over a route and expressed in terms of the mean vector wind and the standard vector deviation, σ , at points along the

3.1.1. Equivalent Route Wind (cont'd.)

route is:

$$EW = \frac{\sum_{i=1}^N z_i}{\sum_{i=1}^N t_i} - A$$

 z_i = length of i-th segment of route t_i = time to fly z_i A = airspeed of aircraft over route

$$\text{but } t_i = z_i / \bar{g}_i$$

where \bar{g}_i = mean ground speed on i-th segment

$$= A - \frac{1}{2A} (\bar{v}_i^2 + \frac{u_i^2}{2}) + \bar{u}_i$$

 \bar{v}_i = mean vector wind component
normal to track

 \bar{u}_i = mean vector wind component parallel
to track

$$\text{and } z_i = Z/N$$

 Z = great circle route distance N = number of equal length segments z_i

$$EW = \frac{Z}{\sum_{i=1}^N \frac{Z/N}{\bar{g}_i}} - A$$

$$EW = \frac{Z}{\sum_{i=1}^N 1/\bar{g}_i} - A$$

3.1.1. Equivalent Route Wind (cont'd.)

or, equivalent headwind is the harmonic mean* of the ground speeds less airspeed. By convention, when mean ground speed is less than airspeed, equivalent wind is a headwind and will be negative.

*The earlier Boeing documents used the arithmetic mean for headwind. Since the airspeed in their case was much greater than windspeed, error would be small. The harmonic mean is technically correct, and for lower airspeed, required to eliminate overestimates.

3.1.2. Route Standard Deviation

Correlation studies and physical considerations reveal that vector winds at points along a route are related to one another^{1,21}. For this reason, the mean vector wind and the standard vector deviation at points along a route while sufficient to determine the average value of the route equivalent wind, are insufficient to determine its variability. For example, strong winds at points along a route may or may not occur simultaneously. If they do not occur together, there is a tendency for the headwind components to average out such that the average value of the extreme winds is less than the values of the extreme winds at individual points over the route. Sawyer¹ has shown this to be the case.

The route standard deviation provides a measure of the variability of the equivalent route wind. The relationship between the route standard deviation and the average value of the standard vector deviation at points along the route is:

$$\sigma_t = S \sqrt{\frac{\sum_{i=1}^N \sigma_i^2}{N}}$$

where:

σ_t = Route standard deviation (tabulated value)

S = Factor to convert root mean square standard vector deviation of wind over a route, into the route standard deviation of the equivalent route wind. The value of S decreases with increasing route length and exhibits some variation with season, latitude and route orientation¹.

The values of S used in preparing Table 3 are those listed in Graystone⁶.

3.1.3. Great Circle Distance

Route lengths in nautical miles are computed over the great-circle

3.1.3. Great Circle Distance (cont'd.)

course, i.e., the least distance on a sphere, between terminals. The expression used to compute great circle distances is:

$$S = 60 \cos^{-1}(\sin \psi_1 \sin \psi_2 + \cos \psi_1 \cos \psi_2 \cos (\lambda_1 - \lambda_2))$$

where:

S = Great circle distance
in nautical miles

ψ = Latitude

λ = Longitude

\cos^{-1} = Angle expressed
in degrees

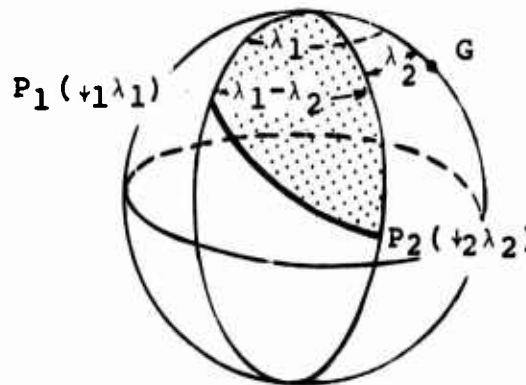


Fig. 1

Great Circle Distance

South latitudes and east longitudes are considered negative and north latitudes and west longitudes are considered positive.

3.2 Annual Equivalent Route Winds

Annual equivalent route winds for the 50%, 75%, and 85% level are computed from the seasonal mean values of equivalent route winds and their standard deviations. The technique involves an iterative procedure by which wind speeds are found such that 50, 75, and 85 percent of the total area under the four seasonal wind distribution curves, lies to their right. With reference to Figure 2, the 50, 75, and 85 annual equivalent winds are estimated to be -5, -11, and -13 knots respectively. (From the

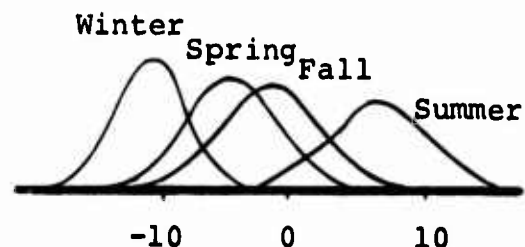


Fig. 2. Hypothetical Seasonal Wind Distribution

3.2 Annual Equivalent Route Winds (cont'd.)

definition, these are the headwinds - headwinds are negative - which will not be exceeded X% of the time. If the distribution of winds are entirely positive (tailwinds) the technique is the same. To assure a headwind value which will not be exceeded, one must get the lowest value of tailwind which meets the reliability level.

3.3 Input Data

The most recent and internally consistent summaries of statistical wind data available were used. Wind statistics were obtained primarily from Crutcher⁵ and the NAVAIR publications while the airfield coordinates were obtained from standard reference sources. The mean vector wind and the standard vector deviation together with the coordinates of each terminal form the input data for an IBM 360/65 program. The wind parameters for the four seasons and for the 5000 (850 mb), 10,000 (700 mb), and 18,000 (500 mb) foot levels, were obtained by computing them at the intersection of each 5° of latitude with each 10° of longitude between 60°N and 60°S and at the intersection of each 5° of latitude with each 20° of longitude north of 60°N and south of 60°S.

3.4 Method

Equivalent route winds are computed by first dividing the route into an integral number of segments of 200 miles or less in length and then calculating the segment flight time resulting from the wind vectors at the mid-points of these segments. This is accomplished by weighing the four nearest wind values (at grid points) in proportion to their proximity to the point on the route. The times are summed for the entire route, and resulting average ground speed is calculated. Equivalent wind results by subtracting average airspeed from the average ground speed.

By convention, a positive sign denotes a tailwind; a negative sign, a headwind.

3.5 Tabulations

Equivalent winds for the 5,000-, 10,000-, 18,000- foot levels are tabulated for routes between selected airfields (Table 3). The route wind tabulations are organized alphabetically by the terminals that identify each route. In the index, each route is referenced under both of its terminals (Table 4). Included in the data are:

3.5 Tabulations (cont'd.)

1. The direct and return seasonal mean equivalent route wind and its standard deviation and the annual 50-, 75-, and 85- percent reliability equivalent route wind in knots.
2. The great circle distance in nautical miles.

An alphabetical listing of terminals with their geographical coordinates is provided in Table 3.

4.0 USE OF TABLES

4.1 Normal Curve

Brooks¹⁰ et al found that in any one season the distribution of equivalent route winds about the mean closely approximates the normal law of errors. According to this law, the mean and its standard deviation completely define the distribution of winds about the mean. In turn, this error distribution very nearly approximates the normal or Gaussian frequency distribution defined as:

$$Y = \frac{1}{\sigma \sqrt{2\pi}} e^{-x^2/2\sigma^2}$$

where:

Y = The frequency ordinate at distance x from the mean

σ = The standard deviation

4.2 Estimating Reliability Equivalent Route Winds

Computation of reliability equivalent route winds deserves special attention since deviations of the relative frequency of extreme wind speeds from the assumed normal law of errors may be appreciable, particularly at levels and in regions affected by jet streams. The frequency of extreme values is probably higher than that predicted from the assumed model. For this reason, reliability equivalent winds for percentages less than 5 and greater than 95 are likely unreliable.

Two methods for estimating equivalent winds for reliabilities other than for the tabulated mean values involve use of error factors and secondly, use of arithmetic probability paper.

4.2.1. Error Factor Method

For a given route, reliability equivalent winds are computed by subtracting the product of k times the standard deviation from the

4.2.1. Error Factor Method (cont'd.)

mean equivalent wind, where k is a factor derivable from the error function. Values of k are given in Table 1 or can be found from tables of the normal curve of error. These methods are accurate only for estimating seasonal reliabilities. The seasonal curves approximate the normal law of errors, but the annual curve does not. Therefore, to get an annual reliability requires an iterative technique as described in 3.2.

The error factors method is illustrated by computing the 85 percent reliability equivalent route wind over the great circle - Ft. Rucker to Ft. Eustis air route, in winter at 5,000 feet.

TABLE 1. ERROR FACTORS

Reliability Percent (Area under normal curve to $+k$)	$+k$ (Number of standard deviations from the mean)
50	0.0
60	0.25
70	0.52
80	0.84
85	1.04
90	1.28
95	1.65

From Table 1, the error factor is 1.04.

- a. The DIRECT reliability equivalent headwind which should not be exceeded on 85 percent of occasions is a wind of -23 knots:

$$-11 - (1.04 \times 12) = -23 \text{ knots.}$$

or, Mean - $1.04 \sigma_t$ (See 3.2)

- b. The RETURN reliability equivalent headwind which can be relied on 85 percent of occasions is a wind of -2.5 knots;

$$10 - (1.04 \times 12) = -2.5 \text{ knots.}$$

or, Mean - $1.04 \sigma_t$ (See 3.2)

4.2.2. Arithmetic Probability Paper Method

As previously stated, in any season the distribution of equivalent route winds about the mean closely approximates the normal law of errors and the normal or Gaussian frequency distribution defined in (4). Arithmetic probability paper is arranged with the percent cumulative frequency scale printed on the ordinate such that the integral of the normal

4.2.2. Arithmetic Probability Paper Method (cont'd.)

$$Q(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^x e^{-x^2/2} dx \quad (5)$$

frequency curve plots as a straight line while the abscissa has a linear scale. The sign convention is followed for equivalent wind speeds (+ for a tailwind and - for a headwind). These two lines give the frequency distribution of equivalent winds over the route.

4.3 Variation in Airspeed

The tabulated equivalent wind data were computed for a 120-knot airspeed. For airspeeds much above this value, the new values may be approximated by assuming the wind speed is the result of the arithmetic mean of the ground speeds.

Expressions to use are:

$$D' = 1/2 (D - R) + \frac{62.5}{A} (D + R) \quad (6)$$

$$R' = -1/2 (D - R) + \frac{62.5}{A} (D + R) \quad (7)$$

If D and R are of equal value and of opposite sign, the tabulated values are the same for any airspeed. If $D \perp R$, i.e., a cross wind component is present, D' and R' will differ slightly from D and R.

Caution should be exercised when attempting to use airspeeds less than 120 knots, because simplifications used in the basic Sawyer method will cause increasing error as wind speeds at any segment approach aircraft speed.

Percent reliability equivalent headwinds computed for the new airspeed, A, will differ by the same amount as the mean values, i.e., $D - D'$, because standard deviations are not sufficiently affected by changes in airspeed².

4.4 Great Circle Route Length

The route length in nautical miles is computed over the great-circle course, i.e., the least distance on a sphere, between terminals (Fig. 3). For completeness, a great circle may be defined as the intersection of the surface of a sphere and a plane which passes through the center of the sphere. A nautical mile is the length

4.4 Great Circle Route Length (cont'd.)

on one minute of arc along a great circle on the earth's surface, i.e., the earth's circumference is $360 \times 60 = 21,600$ n. mi. In terms of statute miles, 1 n. mi. = 1.1508 miles.

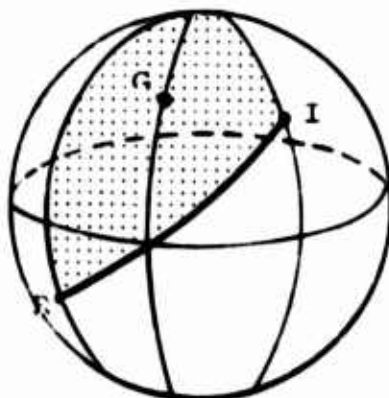


Figure 3 Great Circle Route Length

4.5 Equivalent Route Length

The equivalent route length, for a given reliability equivalent wind, is the distance that an aircraft would have flown in still air on a flight having the same duration as that required with given percent equivalent wind. The equivalent route length may be expressed as

$$L_x = \frac{DA}{A + W_x} \quad (11)$$

where:

L_x = Equivalent route length in knots for x percent reliability equivalent wind W_x

D = Great circle distance in nautical miles

A = Airspeed in knots

5.0 OCCURRENCE OF HEADWINDS ON BOTH DIRECT AND RETURN FLIGHTS

Over routes characterized by prevailing light winds or by strong winds perpendicular to track the direct and return route winds can both appear as a headwind. This situation occurs when the contribution to the mean equivalent wind from the wind components at right angles to the track exceeds the contribution from the wind components along the track. The effect of winds at right angles to track on the ground speed becomes apparent when it is realized that an

5.0 OCCURRENCE OF HEADWINDS ON BOTH DIRECT AND RETURN FLIGHTS (cont'd.)

airplane could make no progress along the intended track with a wind at right angles to the track and equal to its airspeed.

Reliability equivalent headwinds for some routes appear as headwinds for the direct and return flight. The situation can occur over routes where the mean equivalent wind is about the same magnitude as its standard deviation. For example, a route having a mean equivalent wind of 12 knots, and a standard deviation of 15 knots, has an 85 percent reliability wind of -3 knots. In this example a tailwind has not become a headwind, but rather a headwind of 3 knots is not likely to be exceeded on 85 percent of occasions and a tailwind of 12 knots can be relied on 50 percent of occasions.

6.0 RELIABILITY OF RESULTS

The reliability of the tabulated equivalent headwinds as being representative of the actual route winds over great circle routes depends largely upon the assumption that wind distributions in the free atmosphere can be treated by the circular normal distribution. This distribution requires that the zonal and meridional components of wind be uncorrelated and that their standard deviation be equal. From physical considerations, however, some degree of ellipticity must be present, otherwise there would be no mean transport of energy in the atmosphere as is observed. For most conditions, the degree of ellipticity is small and the assumed circular normal distribution acceptable. Brooks¹⁰ pointed out that the assumption of circularity is likely to be weakest in frontal zones, in the vicinity of jet streams and in areas characterized by distinct seasonal wind variation such as the boundary region between a monsoon circulation and the circulation above.

The tabulated values are intended as long term estimates of enroute winds and as such the actual winds in any one season may differ appreciably from them. This condition particularly occurs where all routes closely parallel the mean position of the jet stream. Where air routes routinely traverse normal to the jet stream, however, only small differences between the tabulated and observed route winds should occur.

7.0 CONCLUSION

The application of equivalent winds can aid agencies concerned with the problems of aircraft logistics to estimate the long term capabilities of helicopters to deploy over long distances. Considerable effort has been expended by Boeing-Vertol since 1965 to display temperature probability variations with altitude. Many government agencies are using our data on that subject. By combining that data with the wind data of this document, one can estimate fairly accurately the effects on helicopter performance.

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TABLE 3

**EQUIVALENT ROUTE WINDS FOR HELICOPTER AIR ROUTES
AT HEIGHTS OF 5,000, 10,000, AND 18,000 FOOT LEVELS**

EQUIVALENT MEANINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

MEASUREMENT IN FEET	EQUIVALENT MEANINGS										STANDARD DEVIATION				
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	RETURN				
ABALAN	TC	ALANA													
5000	-3	-9	-3	-13			5	6	9	3					750 N.MI.
10000	-15	-9	-6	-21			14	13	9	6					8 6 8
15000	-25	-15	-10	-34			24	22	14	13					10 10 9 10
ABACAN	TC	ALCIS	ALCIS												
5000	3	3	3	-1			-5	-5	3	-9					1300 N.MI.
10000	-1	2	2	-3			9	-3	-4	-2					6 6 6 6
15000	-11	-6	-5	-11			7	1	-7	4					7 7 6 6
ABALAN	TC	ALAN													
5000	3	3	3	6			-5	-5	-4	-3					1067 N.MI.
10000	6	3	3	-2			-1	-4	-4	-3					6 7 6 6
15000	-6	-1	0	-12			2	-2	-6	5					8 8 7 7
ABALAN	TC	APRAN													
5000	-6	-7	-7	-13			6	6	7	5					630 N.MI.
10000	-16	-16	-6	-22			18	16	6	9					9 8 7 8
15000	-34	-30	-13	-36			31	24	13	17					10 10 9 10
ABALAN	TC	ARKANA													
5000	-4	-5	-5	-13			4	5	9	5					946 N.MI.
10000	-13	-12	-6	-15			12	10	6	7					9 8 6 8
15000	-25	-23	-15	-31			20	15	13	11					10 10 9 10
ABALAN	TC	ATHENS													
5000	-6	-7	-7	-13			4	7	7	5					1296 N.MI.
10000	-16	-15	-11	-21			15	14	11	9					9 7 6 7
15000	-25	-27	-17	-34			26	25	16	16					9 9 8 9
ABALAN	TC	AVIANJ	AT												
5000	-6	-5	-9	-13			5	5	9	5					1909 N.MI.
10000	-13	-11	-15	-21			12	10	13	7					9 7 6 7
15000	-24	-20	-17	-34			17	16	16	13					9 9 7 9
ABACAN	TC	BAKACAC													
5000	-3	-6	-6	-14			5	6	9	5					266 N.MI.
10000	-12	-12	-6	-20			11	11	6	7					9 10 8 8
15000	-25	-25	-11	-33			22	21	11	6					12 11 10 11
ABALAN	TC	BRINGISI													
5000	-6	-6	-7	-13			6	6	7	5					1593 N.MI.
10000	-15	-14	-11	-20			14	13	11	6					9 7 6 7
15000	-27	-25	-16	-34			23	22	17	15					9 5 7 9

MEANINGS--COMPUTED FOR A 12-KT AIRSPEED.

00A--GIVES ANNUAL EQUIVALENT MEANINGS FOR INDICATED PER CENT RELIABILITIES.
PLANS ALSO GIVES MEANINGS.

EQUILIBRANT MEASUREMENTS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

RELAT IN FEET	E A S T										W E S T										N O R T H										S O U T H									
	DIRECT					RETURN					DIRECT					RETURN					DIRECT					RETURN					DIRECT					RETURN				
	JAN	APR	JUL	OCT	ABS	JAN	APR	JUL	OCT	ABS	JAN	APR	JUL	OCT	ABS	JAN	APR	JUL	OCT	ABS	JAN	APR	JUL	OCT	ABS	JAN	APR	JUL	OCT	ABS										
ABALAN	TC	-7	-9	-11	-13	CAIRO	-6	-8	-10	-12	TC	-7	-9	-11	-13	7	9	11	13	5	7	9	11	13	0	073 N.MI.	0	2	4	6	7									
SULL	-16	-18	-20	-22	-24	-15	-17	-19	-21	-23	-16	-18	-20	-22	-24	16	18	20	22	12	14	16	18	20	3	265 N.MI.	10	12	14	16	17									
LOULL	-34	-36	-38	-40	-42	-33	-35	-37	-39	-41	-34	-36	-38	-40	-42	31	33	35	37	23	25	27	29	31	8	604 N.MI.	17	19	21	23	25									
ABALAN	TC	4	6	8	10	GRANAN	5	7	9	11	TC	-4	-6	-8	-10	-4	-6	-8	-10	-7	-9	-11	-13	-15	0	265 N.MI.	9	11	13	15	16									
SULL	4	6	8	10	12	6	8	10	12	14	-7	-9	-11	-13	-15	-7	-9	-11	-13	-7	-9	-11	-13	-15	8	10	12	14	15	16										
LOULL	6	8	10	12	14	8	10	12	14	16	-9	-11	-13	-15	-17	-9	-11	-13	-15	-10	-12	-14	-16	-18	10	12	14	15	16	17										
ABALAN	TC	-3	-5	-7	-9	OLIVARABIE	-2	-4	-6	-8	TC	-4	-6	-8	-10	-3	3	5	7	9	11	13	15	17	-2	604 N.MI.	9	11	13	15	17									
SULL	-14	-16	-18	-20	-22	-15	-17	-19	-21	-23	-14	-16	-18	-20	-22	12	14	16	18	10	12	14	16	18	1	1136 N.MI.	10	12	14	16	17									
LOULL	-24	-26	-28	-30	-32	-23	-25	-27	-29	-31	-24	-26	-28	-30	-32	20	22	24	26	16	18	20	22	24	6	1136 N.MI.	15	17	19	21	23									
ABALAN	TC	-5	-7	-9	-11	IMIR	-3	-5	-7	-9	TC	-6	-8	-10	-12	-5	5	7	9	11	13	15	17	19	0	1146 N.MI.	9	11	13	15	17									
SULL	-16	-18	-20	-22	-24	-17	-19	-21	-23	-25	-16	-18	-20	-22	-24	14	16	18	20	11	13	15	17	19	3	1146 N.MI.	10	12	14	16	17									
LOULL	-24	-26	-28	-30	-32	-25	-27	-29	-31	-33	-24	-26	-28	-30	-32	25	27	29	31	19	21	23	25	27	8	1055 N.MI.	15	17	19	21	23									
ABALAN	TC	5	7	9	11	KARACHI	5	7	9	11	TC	-5	-7	-9	-11	-5	5	7	9	11	13	15	17	19	-12	1055 N.MI.	7	9	11	13	15									
SULL	14	16	18	20	22	7	9	11	13	15	-15	-17	-19	-21	-23	-15	-17	-19	-21	-9	-11	-13	-15	-17	6	1236 N.MI.	8	10	12	14	16									
LOULL	14	16	18	20	22	9	11	13	15	17	-17	-19	-21	-23	-25	-17	-19	-21	-23	-11	-13	-15	-17	-19	7	1236 N.MI.	13	15	17	19	21									
ABALAN	TC	1	3	5	7	KARACHI	1	3	5	7	TC	-1	-3	-5	-7	-1	1	3	5	7	9	11	13	15	-7	1236 N.MI.	6	8	10	12	14									
SULL	-5	-7	-9	-11	-13	-2	-4	-6	-8	-10	-5	-7	-9	-11	-13	6	8	10	12	7	9	11	13	15	6	1720 N.MI.	7	9	11	13	15									
LOULL	-14	-16	-18	-20	-22	-3	-5	-7	-9	-11	-14	-16	-18	-20	-22	14	16	18	20	9	11	13	15	17	7	1720 N.MI.	12	14	16	18	20									
ABALAN	TC	-7	-9	-11	-13	LCGA, PALLA	-6	-8	-10	-12	TC	-7	-9	-11	-13	-7	7	9	11	12	14	16	18	20	0	894 N.MI.	8	10	12	14	16									
SULL	-17	-19	-21	-23	-25	-17	-19	-21	-23	-25	-17	-19	-21	-23	-25	16	18	20	22	12	14	16	18	20	5	894 N.MI.	9	11	13	15	17									
LOULL	-24	-26	-28	-30	-32	-25	-27	-29	-31	-33	-24	-26	-28	-30	-32	26	28	30	32	21	23	25	27	29	8	894 N.MI.	14	16	18	20	22									
ABALAN	TC	-3	-5	-7	-9	LCGA	-4	-6	-8	-10	TC	-3	-5	-7	-9	-3	3	5	7	3	5	7	9	11	-3	894 N.MI.	7	9	11	13	15									
SULL	-14	-16	-18	-20	-22	6	8	10	12	14	-13	-15	-17	-19	-21	15	17	19	21	8	10	12	14	16	0	894 N.MI.	8	10	12	14	16									
LOULL	-24	-26	-28	-30	-32	8	10	12	14	16	-15	-17	-19	-21	-23	26	28	30	32	15	17	19	21	23	3	894 N.MI.	16	18	20	22	24									

MEALINGS---LPPUS FOR A 120-KT AIRSPEED.
 ••A---GIVES ANNUAL EQUIVALENT MEALINGS FOR INDICATED PER CENT RELIABILITIES.
 PIALS SIGA GIVES MEALINGS.

STANDARD DEVIATION

*HEADING--COMPUTED FOR A 120-KT AIRSPEED.
 **A--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 PING SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANGARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*														STANDARD DEVIATION
	DIRECT						RETURN								
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**ASJ	A75	A85	
ACCFA	ASCENSION ISLAND														
5000	2	-1	0	-1	-1	-4	-4	-3	0	0	1	0	-4	-5	1177 N.M.I.
10000	10	7	6	9	7	4	3	-9	-7	-5	-9	-8	-12	-13	4 4 5 5 7 7
18000	9	3	5	4	5	0	-1	-9	-3	-5	-4	-6	-11	-12	8 7 7 7 7
ACCFA	DAKAR														
5000	4	4	2	5	3	0	-1	-4	-4	-1	-4	-4	-8	-9	1160 N.M.I.
10000	4	8	11	14	5	4	3	-4	-8	-11	-14	-10	-15	-16	6 6 6 6 7 7
18000	0	4	11	5	4	0	-2	-1	-4	-11	-5	-6	-11	-12	8 7 7 7 6
ACCFA	ELISABETHVILLE														
5000	1	-3	-3	1	-1	-4	-5	-1	3	3	0	0	-2	-3	1947 N.M.I.
10000	-2	-8	-5	-8	-6	-10	-11	1	8	5	8	5	1	0	4 5 3 4 4 5
18000	-10	-3	-3	-4	-5	-10	-11	10	4	3	4	5	0	0	6 6 6 6 5 5
ACCFA	KANC														
5000	-5	-2	4	0	-1	-6	-7	6	2	-3	0	0	-4	-5	644 N.M.I.
10000	-5	-8	-9	-17	-10	-16	-17	5	6	10	16	9	4	2	6 7 6 6 6 6
18000	4	-4	-8	-5	-4	-10	-11	-5	4	8	6	3	-3	-4	6 6 7 8 7 7
ACCFA	KINSHASA/ACJILI														
5000	-1	-3	0	0	-1	-5	-6	1	3	0	0	0	-2	-3	1110 N.M.I.
10000	-7	-9	-6	-9	-8	-12	-13	7	5	7	9	7	4	3	6 4 4 5 6 6
18000	-11	-4	-5	-4	-6	-12	-13	10	5	5	4	5	0	0	4 6 7 7 7 7
ACCFA	LAGOS														
5000	-4	1	4	3	1	-4	-5	5	-1	-3	-3	-1	-6	-7	223 N.M.I.
10000	-10	-11	-8	-18	-12	-18	-19	11	11	9	18	11	6	5	7 8 8 8 9 9
18000	-6	-4	-8	-5	-6	-12	-14	5	4	8	5	5	0	-2	10 9 9 9 8 8
ACCFA	LAS PALMAS														
5000	-1	-1	4	2	0	-3	-4	1	1	-4	-2	-1	-5	-6	1595 N.M.I.
10000	0	4	8	6	4	0	-1	0	-5	-9	-7	-6	-11	-12	6 6 6 6 7 7
18000	-7	-1	6	4	0	-6	-7	3	0	-7	-4	-3	-8	-9	8 8 7 7 6
ACCFA	LQA, MALTA														
5000	-4	-1	0	-1	-2	-6	-7	4	1	0	2	1	-2	-3	1987 N.M.I.
10000	3	2	-7	-5	-2	-8	-9	-4	-3	6	3	0	-5	-7	6 6 5 5 5 5
18000	7	8	0	3	3	-1	-3	-12	-11	0	-4	-7	-13	-15	7 7 6 7 7 7
ACCFA	NIAPEY														
5000	-4	0	3	1	0	-5	-6	4	0	-3	-1	0	-5	-6	494 N.M.I.
10000	0	-3	-5	-8	-4	-10	-11	0	3	4	6	2	-2	-3	6 6 8 8 8 8
18000	6	0	-3	-2	0	-6	-8	-9	0	2	2	-1	-8	-9	9 9 9 9 8 8

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWIND IN KNOTS												STANDARD DEVIATION			
	DIRECT						RETURN						JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	***ASC	A75	A85	JAN	APR	JUL	OCT	***ASD	A75	A85		
ACCRA																
5000	TC	-1	1	0	-1	-5	-6	3	1	-1	0	0	-3	-4	1801 N.MI.	6
10000		1	0	-1	0	-5	-6	-1	-2	-1	0	-1	-6	-7	6	5
18000		3	2	2	1	-4	-5	-4	-7	-3	-3	-5	-10	-12	8	7
ACCRA																
5000	TC	-1	4	4	0	-4	-5	3	1	-4	0	0	-4	-5	1759 N.MI.	6
10000		2	4	1	1	-3	-4	0	-3	-4	-2	-3	-7	-9	6	5
18000		4	4	2	0	-4	-6	0	-4	-5	-3	-4	-9	-10	7	7
ACCRA																
5000	TC	5	-1	0	0	-3	-4	-5	-5	2	0	-2	-7	-8	610 N.MI.	7
10000		10	11	9	15	6	5	-9	-11	-8	-15	-11	-16	-17	5	5
18000		2	4	9	0	0	0	-8	-4	-9	-5	-7	-13	-14	7	8
ACCRA																
5000	TC	-4	-1	0	-4	-6	-7	4	1	0	1	1	-2	-3	1959 N.MI.	6
10000		2	2	-8	-4	-7	-8	-3	-3	5	2	0	-5	-6	6	5
18000		4	7	1	3	-1	-3	-9	-10	-2	-4	-6	-12	-14	7	7
ACCRA																
5000	TC	5	4	4	4	0	0	-5	-5	-4	-3	-5	-8	-9	1691 N.MI.	6
10000		3	4	5	-1	1	-3	-4	-6	-3	1	-3	-8	-9	6	5
18000		-2	2	0	-4	0	-8	-2	-6	-7	2	-4	-10	-12	7	6
ACCRA																
5000	TC	5	6	8	4	1	0	-6	-6	-8	-3	-6	-10	-11	1541 N.MI.	6
10000		6	7	5	0	0	-1	-7	-8	-5	0	-5	-10	-12	6	5
18000		3	7	7	-5	-3	-5	-9	-11	-7	1	-7	-14	-16	7	8
ACCRA																
5000	TC	-7	-5	-2	-4	-5	-11	6	5	2	4	4	-1	-2	1540 N.MI.	9
10000		-15	-14	-11	-10	-13	-21	14	13	10	9	11	5	3	8	7
18000		-23	-24	-20	-10	-22	-31	20	21	19	17	19	11	9	10	8
ACCRA																
5000	TC	0	1	10	3	-3	-4	-1	-2	-10	-3	-5	-11	-13	304 N.MI.	11
10000		0	0	2	0	0	-9	-3	-3	-3	0	-3	-10	-12	5	7
18000		-1	1	0	-2	0	-13	-6	-5	-9	-2	-8	-18	-21	12	9
ACCRA																
5000	TC	-2	-3	-10	-3	-5	-15	1	3	11	3	4	-3	-5	217 N.MI.	13
10000		-6	-7	-7	-5	-7	-16	6	5	6	3	5	-3	-5	11	9
18000		-15	-15	-14	-11	-14	-25	9	10	11	7	9	-2	-5	14	10

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

***--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN GIVES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWIND IN KNOTS										STANDARD DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	***A50	A75	A85	JAN	APR	JUL	OCT	***A50	A75	A85	
ACANA	TC	TC	ATHENS												554 N.MI.
5000	-7	-6	-4	-4	-6	-12	-14	6	6	3	4	4	-2	-3	13
10000	-16	-14	-12	-10	-12	-22	-24	15	14	12	10	12	4	2	13
18000	-26	-26	-19	-15	-22	-34	-37	23	23	18	18	20	9	6	19
ADANA	TC	TC	AVIANU AE												1156 N.MI.
5000	-7	-6	-9	-6	-8	-14	-15	5	5	8	5	5	0	-2	11
10000	-12	-11	-12	-8	-12	-19	-21	11	10	11	7	9	2	0	12
18000	-15	-17	-19	-16	-18	-26	-30	15	14	18	14	15	5	3	17
ADANA	TC	TC	BAGHDAD												497 N.MI.
5000	4	6	9	5	6	C	-1	-5	-6	-9	-5	-7	-13	-14	11
10000	14	13	9	8	11	2	1	-15	-14	-10	-9	-13	-20	-22	11
18000	24	22	16	15	18	8	6	-28	-25	-17	-18	-22	-33	-35	18
ADANA	TC	TC	BITBURG AE												1455 N.MI.
5000	-7	-6	-9	-6	-8	-14	-15	6	5	9	6	6	0	-1	11
10000	-12	-10	-11	-5	-11	-16	-19	11	9	11	8	9	2	1	11
18000	-15	-15	-18	-17	-18	-27	-29	15	12	16	14	14	5	2	16
ALANA	TC	TC	BORDEAUX												1683 N.MI.
5000	-7	-5	-7	-5	-7	-12	-13	6	4	7	5	5	0	-1	10
10000	-14	-11	-12	-9	-12	-18	-20	12	10	12	8	10	4	2	10
18000	-20	-18	-20	-16	-20	-26	-30	18	15	19	16	16	8	6	15
ADANA	TC	TC	BRINCESI												838 N.MI.
5000	-7	-6	-6	-5	-6	-13	-15	6	6	5	5	5	-1	-2	12
10000	-15	-13	-12	-9	-12	-20	-22	13	12	12	9	11	3	2	12
18000	-23	-21	-21	-18	-22	-32	-34	20	21	20	16	19	9	6	18
ADANA	TC	TC	CAIRO												454 N.MI.
5000	-2	-1	7	1	1	-5	-7	1	1	-7	-1	-2	-8	-10	11
10000	-6	-7	-2	-5	-6	-13	-15	5	4	1	3	3	-4	-6	12
18000	-17	-12	0	-11	-10	-21	-24	8	4	-2	7	3	-6	-9	19
ADANA	TC	TC	CHATELAIN												1596 N.MI.
5000	-7	-5	-8	-5	-7	-12	-14	6	5	8	5	6	0	-1	10
10000	-12	-11	-12	-9	-12	-18	-20	14	5	12	8	10	3	2	11
18000	-15	-17	-20	-17	-15	-26	-30	16	14	18	15	15	7	4	15
ADANA	TC	TC	CHALMONT												1401 N.MI.
5000	-7	-6	-9	-6	-8	-13	-15	6	5	9	6	6	0	0	11
10000	-12	-10	-12	-9	-12	-18	-20	11	5	11	8	9	3	1	11
18000	-15	-16	-19	-17	-18	-27	-30	15	13	17	14	14	5	3	16

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

***LENGTHS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS												STANDARD DEVIATION	
	DIRECT						RETURN							
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC		
ALANA	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	993 N.M.I.	
5000	5	6	10	5	6	1	0	-5	-6	-10	-5	-7		
10000	12	12	16	6	5	3	1	-14	-13	-8	-7	-11		
15000	21	21	22	6	14	6	4	-27	-25	-13	-11	-18	241 N.M.I.	
5000	5	6	3	4	4	-2	-3	-6	-6	-3	-4	-5		
10000	15	14	10	11	12	4	2	-16	-14	-10	-11	-13		
15000	23	22	16	16	15	6	5	-26	-24	-17	-20	-22	1434 N.M.I.	
5000	-1	-6	-9	-6	-6	-14	-15	5	5	9	6	6		
10000	-12	-10	-11	-5	-11	-16	-15	11	6	11	7	9		
15000	-15	-15	-18	-16	-16	-27	-25	15	11	16	13	13	304 N.M.I.	
5000	-2	-6	-10	-5	-7	-14	-16	4	5	10	5	6		
10000	-12	-11	-12	-8	-11	-26	-22	11	5	12	7	9		
15000	-20	-21	-18	-16	-15	-31	-24	16	16	17	13	16	394 N.M.I.	
5000	-6	-6	-6	-4	-6	-13	-14	6	6	5	4	5		
10000	-15	-14	-13	-10	-13	-22	-24	15	13	13	10	12		
15000	-22	-25	-19	-19	-22	-34	-37	22	23	16	17	14	1782 N.M.I.	
5000	5	7	7	3	5	1	6	-5	-7	-7	-2	-6		
10000	15	11	6	7	5	4	3	-14	-12	-6	-7	-10		
15000	25	25	16	14	16	10	8	-33	-27	-11	-15	-21	1290 N.M.I.	
5000	4	5	4	4	4	0	-1	-4	-5	-4	-3	-5		
10000	-1	0	3	-2	0	-5	-7	0	-2	-4	2	-1		
15000	-6	-2	5	-7	-3	-11	-13	1	-2	-6	5	-1	1005 N.M.I.	
5000	-6	-6	-1	-4	-5	-11	-13	7	5	0	4	3		
10000	-16	-15	-10	-11	-13	-21	-22	15	14	10	10	12		
15000	-27	-26	-16	-16	-23	-32	-35	23	24	16	18	14	751 N.M.I.	
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1	-2	-5	4	-1		
5000	0	1	7	3	3	-2	-3	0	-1	-7	-3	-4		
10000	-3	-2	1	-4	-2	-5	-11	1	0	-1	3	0		
15000	-10	-5	3	-7	-4	-14	-17	1						

EQUIVALENT HEADWINDS AND STANCAFE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANCAFE DEVIATION				
	DIRECT						RETURN										
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	
ACANA	-7	-9	-11	-13	-15	-17	6	5	9	6	6	6	10	10	11	11	1724 N.M.I.
SUCC	-14	-11	-9	-11	-13	-15	11	8	10	6	9	9	11	11	12	12	1724 N.M.I.
LUCC	-20	-15	-11	-11	-13	-15	15	11	15	14	13	13	15	15	16	16	1724 N.M.I.
ACANA	1	-4	-4	-1	-3	-5	-2	-1	3	-1	3	3	-7	-7	-9	-9	1132 N.M.I.
SUCC	6	0	0	0	0	0	-2	-2	-1	-1	-1	-1	-10	-10	-10	-10	1132 N.M.I.
LUCC	-4	-2	-1	-3	-5	-7	-1	-2	-2	-1	-2	-2	-12	-12	-12	-12	1132 N.M.I.
ACANA	-8	-5	-5	-6	-8	-10	7	5	5	5	5	5	12	12	12	12	1006 N.M.I.
SUCC	-15	-12	-10	-12	-14	-16	13	12	12	9	11	11	12	12	12	12	1006 N.M.I.
LUCC	-22	-21	-18	-21	-23	-25	19	20	20	16	18	18	17	17	17	17	1006 N.M.I.
ACANA	-7	-5	-2	-4	-6	-8	6	5	2	4	4	4	-1	-1	-2	-2	1720 N.M.I.
SUCC	-15	-12	-10	-12	-14	-16	14	12	10	10	11	11	5	5	5	5	1720 N.M.I.
LUCC	-23	-24	-20	-22	-24	-26	20	22	19	17	19	19	14	14	14	14	1720 N.M.I.
ACANA	-8	-5	-9	-7	-9	-11	7	5	9	6	6	6	1	1	0	0	1953 N.M.I.
SUCC	-14	-10	-10	-11	-13	-15	10	8	10	8	9	9	2	2	1	1	1953 N.M.I.
LUCC	-21	-19	-17	-17	-19	-21	16	16	14	13	13	13	4	4	2	2	1953 N.M.I.
ACANA	-7	-5	-9	-7	-9	-11	5	5	9	6	6	6	0	0	-1	-1	1390 N.M.I.
SUCC	-12	-10	-11	-9	-11	-13	10	8	11	7	9	9	2	2	0	0	1390 N.M.I.
LUCC	-15	-15	-10	-11	-13	-15	14	14	14	13	13	13	3	3	1	1	1390 N.M.I.
ACANA	-8	-6	-6	-7	-9	-11	7	5	6	5	5	5	0	0	-2	-2	1093 N.M.I.
SUCC	-14	-13	-12	-10	-12	-14	13	12	12	8	11	11	3	3	2	2	1093 N.M.I.
LUCC	-22	-21	-21	-18	-21	-23	18	19	20	16	18	18	0	0	0	0	1093 N.M.I.
ACANA	-7	-5	-6	-4	-6	-8	2	2	6	2	3	3	-2	-2	-4	-4	1505 N.M.I.
SUCC	-13	-10	-10	-9	-11	-13	4	4	5	4	5	5	-3	-3	-4	-4	1505 N.M.I.
LUCC	-19	-16	-14	-11	-13	-15	8	8	5	6	6	6	-3	-3	-6	-6	1505 N.M.I.
ACANA	5	5	5	5	5	5	-5	-6	-6	-4	-4	-4	-11	-11	-13	-13	705 N.M.I.
SUCC	15	13	11	11	11	11	-10	-14	-9	-11	-13	-13	-20	-20	-22	-22	705 N.M.I.
LUCC	23	25	16	19	21	21	-29	-26	-17	-20	-23	-23	-33	-33	-36	-36	705 N.M.I.

HEADWINDS--COMPUTED FOR A 120-MPH AIRSPEED.
 004--GREATS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 PLUS SIGN GIVES HEADWINDS.

EQUIVALENT HEADINGS AND STANCAFL DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS										STANCAFL DEVIATION			
	DIRECT					RETURN					JAN	APR	JUL	OCT
	JAN	APR	JUL	UCT	00ASO	075	085	JAN	APR	JUL	UCT	00ASO	075	085
ACANA	TO	TO	TEL AVIV					U	C	-9	-2	-4	-10	-12
5000	6	5	2	3	-4	-0		0	C	-1	1	0	-8	-10
10000	-2	-1	-2	-1	-5	-11		-3	-3	-6	0	-4	-15	-10
15000	-6	-3	-5	-3	-14	-17								
ALANA	TO	TO	TORREJUA					0	4	4	4	4	0	-1
5000	-3	-5	-4	-6	-11	-12		13	11	12	9	11	5	3
10000	-14	-12	-10	-13	-15	-20		16	16	21	16	18	10	8
15000	-20	-22	-18	-21	-26	-30								
ALANA	TC	TC	TUNIS					7	5	1	4	4	-1	-3
5000	-6	-2	-4	-3	-11	-13		14	13	10	10	11	4	3
10000	-15	-14	-11	-13	-20	-22		21	23	18	17	19	10	8
15000	-25	-25	-19	-22	-31	-34								
ACANA	TC	TC	ZAMECAN					-5	-6	-6	-3	-6	-10	-11
5000	5	6	4	5	6	0		-15	-13	-7	-9	-11	-17	-19
10000	14	12	7	9	10	3		-32	-28	-14	-17	-22	-32	-35
15000	25	26	14	16	20	16								
ACANA	TC	TC	ZARAGUZA					0	4	5	4	4	4	-2
5000	-7	-5	-5	-6	-12	-13		13	11	12	9	11	4	3
10000	-14	-12	-10	-13	-15	-21		17	17	21	16	17	4	7
15000	-20	-20	-18	-20	-25	-31								
ACCIS AREA	TC	TC	ALCA					11	6	-7	6	5	-2	-4
5000	-11	-5	7	-6	-11	-12		5	6	5	11	7	2	1
10000	-4	-7	-4	-10	-12	-13		-3	1	14	9	5	-2	-4
15000	3	-1	-13	-5	-6	-14								
ACCIS AREA	TC	TC	APMAN					6	5	2	4	4	0	0
5000	-6	-6	-3	-4	-5	-10		3	5	3	-1	2	-2	-3
10000	-4	-6	-3	1	-3	-9		-3	2	6	-5	0	-7	-9
15000	6	-5	-6	4	-2	-11								
ACCIS AREA	TC	TC	ANKARA					5	2	4	3	4	6	0
5000	-2	-5	-3	-3	-5	-10		3	4	3	-1	1	-2	-3
10000	-4	-5	-3	0	-6	-9		-2	3	6	-3	0	-2	-7
15000	-3	-7	-7	1	-4	-12								
ACCIS AREA	TC	TC	ATHENS					6	6	4	3	4	1	0
5000	-1	-6	-4	-3	-5	-10		5	6	4	1	3	0	-1
10000	-6	-7	-4	-1	-5	-11		2	7	6	3	3	-2	-4
15000	-2	-11	-7	-1	-7	-15								

HEADINGS--COMPUTED FOR 2, 10-KT AIRSPEED.

00A--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN LEAVES HEADINGS.

EQUIVALENT HEADWINDS AND STANGARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS													STANGARC DEVIATION				
	DIRECT						RETURN											
	JAN	APR	JUL	JUL	APR	JAN	JAN	APR	JUL	OCT	APR	JUL	OCT					
ACDIS ABREA	TO																	
5000	-5	-2	-4	-4	-5	-5	5	5	1	4	3	0	-1					1492 N.M.I.
10000	-1	-4	0	-3	-7	-9	0	3	4	0	1	-3	-4					6 7 7 6 7 5
18000	4	-1	-6	5	-6	-6	-9	-2	5	-6	-3	-10	-12					11 9 9 7 7 7
ACDIS ABREA	TC																	1335 N.M.I.
5000	-7	-2	-3	-3	-5	-10	7	6	2	3	4	0	0					6 6 6 6 6 6
10000	-5	-2	2	2	-3	-5	5	6	2	-2	2	-2	-3					7 7 7 6 6 6
18000	-2	-7	-5	3	-10	-11	-1	4	5	-4	0	-6	-8					11 10 10 7 7 8
ACDIS ABREA	TO																	1223 N.M.I.
5000	-6	2	-4	-4	-8	-9	6	5	-3	4	3	-2	-3					6 6 6 6 6 6
10000	0	-3	-5	-5	-4	-9	0	2	4	5	2	-2	-3					7 7 7 6 6 6
18000	5	1	-8	1	-7	-8	-12	-3	8	-1	-2	-10	-12					10 9 9 6 6 7
ACDIS ABREA	TC																	1730 N.M.I.
5000	-4	-3	-3	-3	-4	-9	4	4	3	3	3	0	-1					6 5 5 5 5 5
10000	-2	-4	-3	1	-7	-8	1	3	2	-2	0	-3	-5					7 7 7 6 6 6
18000	0	-3	-6	4	-2	-10	-6	0	7	-6	-2	-9	-11					11 10 10 7 7 8
ACDIS ABREA	TC																	1410 N.M.I.
5000	6	0	5	2	0	-1	-7	0	0	-5	-3	-7	-8					4 4 3 3 3 4
10000	7	-2	5	4	0	-1	-7	-6	2	-5	-5	-9	-10					5 6 5 5 5 5
18000	3	4	4	3	0	-1	-3	-4	-3	-4	-4	-8	-9					5 6 6 6 6 5
ACDIS ABREA	TC																	1991 N.M.I.
5000	-5	-6	-3	-3	-5	-10	5	5	5	3	4	0	0					6 5 5 5 5 5
10000	-5	-6	0	-4	-5	-10	4	5	4	0	2	-1	-2					7 7 7 6 6 6
18000	-5	-9	-8	0	-6	-14	0	5	7	-1	2	-3	-5					11 9 9 7 7 8
ACDIS ABREA	TC																	1873 N.M.I.
5000	-6	-5	-3	-3	-6	-10	6	6	4	3	4	1	0					6 5 5 5 5 5
10000	-6	-7	0	0	-10	-11	4	6	4	0	3	-1	-2					7 7 7 6 6 6
18000	-6	-10	-8	0	-13	-15	0	6	7	-1	3	-3	-5					11 9 9 7 7 8
ACDIS ABREA	TC																	1793 N.M.I.
5000	7	-1	5	4	0	-1	-7	-6	2	-5	-5	-9	-10					4 5 5 5 5 5
10000	3	4	11	12	7	1	-2	-3	-10	-12	-7	-12	-13					5 5 5 5 5 5
18000	1	4	12	10	7	0	-2	-4	-12	-9	-8	-12	-13					6 6 6 5 5 5
ACDIS ABREA	TC																	1880 N.M.I.
5000	-4	-2	8	-3	-1	-7	4	2	-8	4	1	-4	-6					5 5 5 5 5 5
10000	1	0	-2	-5	-2	-7	-2	-1	2	5	0	-3	-4					6 6 6 5 5 5
18000	12	6	-9	-1	0	-8	-15	-6	9	1	-2	-12	-14					8 8 8 5 5 6

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

*A--LARGEST ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANCARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS												STANCARC DEVIATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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	JAN	APR	JUL	OCT	APR	SEP	JAN	APR	JUL	OCT	APR	SEP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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HEADINGS—COMPUTED FOR A 120-MT AIRSPEED.

APR—GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

PLANE SIGN DENOTES HEADINGS.

EQUIVALENT HEADINGS AND STANAGAR DEVIAION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS										STANAGAR DEVIAION			
	DIRECT					RETURN								
	JAN	APR	JUL	OCT	0000	075	AUG	JAN	APR	JUL	OCT	0000	075	AUG
AGEA	TC													
5000	-5	-6	-5	-3		-6	-10	5	6	9	3	5	1	0
10000	-7	-8	-5	0		-8	-11	6	7	5	0	4	0	-1
15000	-10	-12	-8	0		-8	-15	3	7	7	-1	3	-3	-4
AGEA	TC													
5000	-7	-7	-8	-3		-7	-11	7	7	8	3	6	2	1
10000	-10	-10	-8	-1		-7	-13	9	5	6	0	6	0	0
15000	-15	-16	-9	-4		-11	-16	9	12	8	1	7	5	0
AGEA	TC													
5000	-5	-6	-5	-3		-6	-10	2	5	6	4	5	0	0
10000	-4	-6	-5	-1		-5	-10	2	4	5	1	3	-1	-3
15000	-2	-5	-8	5		-2	-10	-4	1	5	-6	-1	-8	-10
AGEA	TC													
5000	-7	-7	-7	-2		-6	-11	7	7	8	2	4	1	0
10000	-5	-10	-3	2		-5	-11	8	5	3	-2	4	-1	-3
15000	-10	-12	-5	1		-6	-14	6	5	4	-2	3	-3	-4
AGEA	TC													
5000	-6	-6	-2	-4		-5	-10	6	6	1	4	4	0	-1
10000	-1	-4	-4	-4		-4	-5	0	3	5	4	3	-2	-3
15000	6	0	-8	4		0	-8	-10	-2	7	-4	-2	-10	-12
AGEA	TC													
5000	-5	-5	-7	-3		-6	-10	4	5	7	3	4	0	0
10000	-5	-6	-4	0		-4	-5	3	5	4	0	2	-2	-3
15000	-6	-8	-6	3		-5	-11	0	3	5	-5	0	-6	-8
AGEA	TC													
5000	5	1	-1	0		3	-1	-6	-1	1	-5	-3	-7	-8
10000	7	0	-1	7		3	1	-7	-7	1	-7	-6	-9	-10
15000	2	4	5	5		4	0	-3	-4	-6	-5	-5	-9	-9
AGEA	TC													
5000	-6	-6	-5	-3		-7	-11	5	6	9	3	5	1	0
10000	-6	-9	-6	-1		-7	-12	7	6	6	0	5	0	0
15000	-12	-14	-9	-2		-5	-16	6	5	8	0	5	-1	-2
AGEA	TC													
5000	-7	-7	-8	-3		-7	-11	6	7	8	3	6	2	1
10000	-5	-10	-6	-1		-7	-12	6	5	6	0	5	0	0
15000	-15	-15	-9	-2		-10	-17	7	11	8	0	6	0	-2

HEADINGS--COMPUTED FOR A 100-KT AIRSPEED.

000--LENGTHS ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
PIALS SIGN CANNOT HEADINGS.

EQUIVALENT MEASUREMENTS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT MEASUREMENTS														STANDARD DEVIATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	DIRECT							RETURN							JAN	APR	JUL	OCT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	JAN	APR	JUL	UCT	WASC	ATS	ABD	JAN	APR	JUL	UCT	WASC	ATS	ABD																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
AGEA	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC

EQUIVALENT HEADLINES AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E C L I V A L E A T H E A C D I N U S O										STANDARD DEVIATION
	DIRECT					RETURN					
	JAN	APR	JUL	OCT	0000	JAN	APR	JUL	OCT	0000	
ALBACON AFE	-10	-10	-10	-10	-10	10	10	10	10	10	1275 N.M.I.
5000	-5	-5	-5	-5	-5	5	5	5	5	5	3
10000	-5	-5	-5	-5	-5	5	5	5	5	5	3
10000	-5	-5	-5	-5	-5	5	5	5	5	5	3
ALBACON AFE	-11	-11	-11	-11	-11	11	11	11	11	11	304 N.M.I.
5000	-6	-6	-6	-6	-6	6	6	6	6	6	4
10000	-6	-6	-6	-6	-6	6	6	6	6	6	4
10000	-6	-6	-6	-6	-6	6	6	6	6	6	4
ALBACON AFE	-5	-5	-5	-5	-5	5	5	5	5	5	1960 N.M.I.
5000	-10	-10	-10	-10	-10	10	10	10	10	10	3
10000	-10	-10	-10	-10	-10	10	10	10	10	10	3
10000	-10	-10	-10	-10	-10	10	10	10	10	10	3
ALBACON AFE	-5	-5	-5	-5	-5	5	5	5	5	5	414 N.M.I.
5000	-10	-10	-10	-10	-10	10	10	10	10	10	4
10000	-10	-10	-10	-10	-10	10	10	10	10	10	4
10000	-10	-10	-10	-10	-10	10	10	10	10	10	4
ALBACON AFE	-12	-12	-12	-12	-12	12	12	12	12	12	1199 N.M.I.
5000	-10	-10	-10	-10	-10	10	10	10	10	10	5
10000	-10	-10	-10	-10	-10	10	10	10	10	10	5
10000	-10	-10	-10	-10	-10	10	10	10	10	10	5
ALBACON AFE	-10	-10	-10	-10	-10	10	10	10	10	10	1563 N.M.I.
5000	-5	-5	-5	-5	-5	5	5	5	5	5	7
10000	-5	-5	-5	-5	-5	5	5	5	5	5	7
10000	-5	-5	-5	-5	-5	5	5	5	5	5	7
ALBACON AFE	-7	-7	-7	-7	-7	7	7	7	7	7	1507 N.M.I.
5000	-10	-10	-10	-10	-10	10	10	10	10	10	6
10000	-10	-10	-10	-10	-10	10	10	10	10	10	6
10000	-10	-10	-10	-10	-10	10	10	10	10	10	6
ALBACON AFE	-10	-10	-10	-10	-10	10	10	10	10	10	1823 N.M.I.
5000	-5	-5	-5	-5	-5	5	5	5	5	5	7
10000	-5	-5	-5	-5	-5	5	5	5	5	5	7
10000	-5	-5	-5	-5	-5	5	5	5	5	5	7
ALBACON AFE	-10	-10	-10	-10	-10	10	10	10	10	10	1349 N.M.I.
5000	-5	-5	-5	-5	-5	5	5	5	5	5	7
10000	-5	-5	-5	-5	-5	5	5	5	5	5	7
10000	-5	-5	-5	-5	-5	5	5	5	5	5	7

ONE CALCULUS--COMPUTED FOR A 140-KT AIRSPEED.

100A--CENCIES ANNUAL EQUIVALENT READINGS FOR INDICATED PER CENT RELIABILITIES.
PIALS SIGA CENOTES MEASUREMENTS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNUTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS										STANDARD DEVIATION			
	DIRECT					RETURN					JAN	APR	JUL	CT
	ON	AFN	JUL	UCT	0035C	AT5	AB5	JAN	APR	JUL	UCT	0035C	AT5	AB5
ALBACER AFE	TO													
5000	3	7	0	2	4	C	3	-4	-7	-3	-2	-3	-5	-10
10000	1	2	0	3	3	C	-1	-1	-2	-4	-3	-4	-8	-10
15000	-3	-6	5	6	C	-7	-5	0	3	-3	-1	-1	-7	-8
1517 N.M.I.														
ALBACER AFE	TC													
5000	2	0	5	1	3	C	-1	-3	-6	-4	-1	-4	-8	-9
10000	6	1	7	2	2	-2	-3	-1	-4	-7	-2	-4	-8	-9
15000	-6	-7	4	6	-1	-5	-10	2	4	-4	-1	-1	-6	-7
1525 N.M.I.														
ALBACER AFE	TC													
5000	6	3	3	1	2	-1	-2	-1	-5	-3	-1	-3	-7	-8
10000	6	1	4	2	1	-2	-3	-1	-2	-5	-2	-3	-7	-8
15000	-5	-5	2	1	-1	-8	-9	1	2	-2	-2	-1	-6	-7
1445 N.M.I.														
ALBACER AFE	TC													
5000	6	2	2	0	1	-2	-3	3	-4	-1	-1	-2	-6	-7
10000	6	2	2	2	1	-3	-4	-1	-3	-3	-2	-3	-7	-8
15000	-4	-3	2	2	6	-7	-8	0	6	-2	-3	-2	-8	-9
1570 N.M.I.														
ALBACER AFE	TC													
5000	6	1	0	0	1	-3	-4	0	-4	-1	-1	-2	-6	-7
10000	-1	2	2	2	1	-3	-4	0	-4	-2	-2	-3	-7	-8
15000	-3	-2	1	3	6	-6	-8	-3	-2	-2	-5	-3	-9	-11
1757 N.M.I.														
ALBACER AFE	TC													
5000	6	3	1	2	2	-1	-2	-1	-3	-3	-1	-3	-7	-8
10000	6	2	3	3	2	-1	-2	-1	-2	-3	-2	-3	-7	-8
15000	-5	-5	2	1	-1	-6	-5	2	2	-2	-2	0	-6	-7
1376 N.M.I.														
ALBACER AFE	TC													
5000	-6	3	-2	-2	-3	-7	-8	0	-3	2	2	2	-2	-3
10000	-4	2	-3	0	-2	-7	-6	4	6	1	3	1	-3	-4
15000	-4	-2	-2	0	-2	-8	-9	4	2	1	3	1	-3	-5
704 N.M.I.														
ALBACER AFE	TC													
5000	6	9	3	0	4	6	-1	-7	-6	-3	1	-4	-9	-13
10000	6	0	4	6	7	3	2	-9	-6	-13	-6	-8	-13	-14
15000	4	2	12	6	6	6	-1	-4	-2	-11	-6	-7	-12	-14
727 N.M.I.														
ALBACER AFE	TC													
5000	-1	0	2	0	1	-2	-3	1	-6	-2	0	-2	-8	-7
10000	6	3	3	3	2	-1	-2	-1	-3	-6	-3	-4	-8	-6
15000	-3	-2	3	3	6	-5	-7	2	2	-3	-3	-1	-7	-8
859 N.M.I.														

* HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

** A--EQUATES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADINGS AND STANCRG DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS																STANDARD DEVIATION		
	DIRECT						RETURN												
	JAN	APR	JUL	OCT	0045C	A75	A85	JAN	APR	JUL	UCT	0045G	A75	A85	JAN	APR		JUL	OCT
ALBACCK AFE	TC	MCNESTEAL AFB																	
5000	-2	6	2	1	1	-2	-3	2	-5	-1	0	-1	-5	-4	7	6	991 N.MI.		
10000	0	3	3	3	2	-2	-3	0	-3	-4	-3	-3	-8	-9	7	7	4 6 5		
18000	-4	-3	2	2	2	-6	-6	3	2	-2	-2	0	-6	-7	10	9	6 6 8		
ALBACCK AFE	TC	MUNTER AFB																	
5000	0	5	2	1	1	-2	-3	0	-5	-2	-1	-3	-7	-8	7	6	1306 N.MI.		
10000	0	3	3	3	2	-2	-3	-1	-2	-4	-3	-3	-7	-8	7	7	4 6 6		
18000	-5	-4	2	2	-1	-7	-9	1	1	-2	-2	-1	-6	-8	10	5	5 6 8		
ALBACCK AFE	TC	JACKSONVILLE																	
5000	0	5	2	1	1	-2	-3	0	-5	-2	-1	-3	-7	-8	7	6	1292 N.MI.		
10000	0	3	3	3	2	-2	-3	0	-4	-4	-3	-3	-7	-8	7	7	4 6 6		
18000	-4	-4	2	2	2	-7	-8	2	1	-2	-2	-1	-6	-7	10	9	5 6 8		
ALBACCK AFE	TC	KEY WEST																	
5000	-2	6	2	0	1	-2	-3	1	-6	-2	0	-2	-6	-7	7	6	304 N.MI.		
10000	0	3	4	3	2	-1	-3	0	-3	-3	-3	-3	-6	-9	7	7	4 6 5		
18000	-3	-2	3	3	3	-5	-7	3	2	-3	-3	-1	-6	-8	10	9	6 6 8		
ALBACCK AFE	TC	KINLEYS AFB																	
5000	-2	4	0	-1	0	-4	-5	2	-4	0	0	-1	-4	-5	6	6	1629 N.MI.		
10000	-2	3	0	1	0	-4	-5	1	-4	0	-1	-1	-6	-7	8	7	4 6 6		
18000	-1	2	0	2	0	-4	-6	-1	-5	0	-3	-3	-10	-10	10	5	5 6 7		
ALBACCK AFE	TC	KINGSTON																	
5000	-2	6	-1	-1	-1	-6	-7	8	-5	2	2	1	-2	-4	6	6	592 N.MI.		
10000	-2	0	-1	0	-1	-6	-7	3	0	0	0	0	-4	-5	7	7	4 6 5		
18000	-4	-2	-1	0	-2	-7	-9	3	2	0	0	0	-6	-8	10	5	6 6 8		
ALBACCK AFE	TC	LA PALZ																	
5000	-2	4	-3	-3	-4	-6	-7	3	4	4	4	3	1	1	4	3	1670 N.MI.		
10000	-2	0	-2	-3	-3	-6	-7	2	4	2	3	2	0	0	4	4	3 3 3		
18000	-2	0	-3	-3	-3	-7	-8	1	0	2	3	1	-2	-3	7	6	5 6 5		
ALBACCK AFE	TC	LIMA																	
5000	-1	4	-3	-1	-2	-5	-5	1	3	4	2	2	0	0	4	3	1273 N.MI.		
10000	1	-2	-2	-1	-1	-5	-5	-1	2	1	0	0	-3	-4	4	4	4 6 5		
18000	-1	0	-2	-1	-2	-6	-7	0	0	1	1	0	-4	-5	7	7	6 6 6		
ALBACCK AFE	TC	PANAGUA																	
5000	0	5	1	-1	2	-1	-2	-6	-8	-1	1	-3	-6	-9	6	6	439 N.MI.		
10000	0	7	15	7	6	3	2	-6	-6	-14	-6	-8	-13	-14	6	6	4 6 6		
18000	5	4	12	6	7	0	0	-5	-3	-12	-6	-7	-13	-15	10	5	5 7 8		

*HEADINGS—COMPUTED FOR A 120-KT AIRSPEED.

**A—CENOTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADINGS AND STANCAEC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS														STANDARD DEVIATION				
	DIRECT					RETURN													
	JAN	APR	JUL	OCT	DEC	WASC	A75	AES	JAN	APR	JUL	OCT	WASO	A75	AES	JAN	APR	JUL	OCT
ALBACCK AFE	TC					MCGLIRE AFE													
5000	4	1	1	1	1	-2	-3		0	-4	-1	-1	-2	-6	-7	7	6	5	6
10000	-1	2	2	2	2	-3	-4		-1	-5	-2	-3	-3	-8	-9	8	7	5	7
18000	-2	1	3	3	3	-6	-8		-5	-3	-2	-6	-4	-10	-12	10	10	6	9
ALBACCK AFE	TC					MEDELLIA													
5000	5	-7	-4	-2	-2	-7	-8		-5	6	4	3	3	-1	-2	6	5	4	3
10000	-5	-6	-14	-6	-6	-13	-14		5	6	14	7	7	3	2	5	6	7	6
18000	-5	-5	-11	-6	-6	-13	-15		5	5	12	7	7	1	0	10	5	8	7
ALBACCK AFE	TC					NEW CUMBERLAND													
5000	3	1	1	1	1	-3	-4		0	-4	-1	-1	-2	-6	-7	7	6	5	6
10000	-1	2	2	2	2	-3	-4		-1	-4	-2	-3	-3	-8	-9	8	7	5	7
18000	-3	1	3	3	3	-6	-8		-4	-2	-2	-5	-4	-10	-11	10	10	6	9
ALBACCK AFE	TC					NEW ORLEANS													
5000	6	4	7	2	2	0	-1		-3	-6	-4	-1	-4	-8	-9	7	6	4	6
10000	1	7	7	2	2	-1	-2		-1	-2	-7	-2	-4	-8	-9	7	7	5	6
18000	-4	-6	3	1	1	-7	-9		1	3	-4	-1	-1	-6	-8	10	9	5	8
ALBACCK AFE	TC					PARAMARIEC													
5000	-10	-9	-9	-9	-9	-12	-13		10	10	10	9	9	7	6	4	4	3	3
10000	-5	-15	-9	-9	-9	-14	-15		10	5	16	10	10	7	7	4	4	5	4
18000	-5	-12	-8	-8	-8	-13	-14		5	5	13	8	7	3	1	7	7	6	5
ALBACCK AFE	TC					PATRICK AFE													
5000	-1	5	2	1	1	-2	-3		1	-5	-2	-1	-2	-6	-7	7	6	4	6
10000	0	2	3	3	3	-2	-3		0	-2	-4	-3	-3	-7	-8	7	7	5	6
18000	-4	-3	2	2	2	-6	-8		2	2	-2	-2	0	-6	-7	10	5	6	8
ALBACCK AFE	TC					PKMT AU PRINCE													
5000	-10	-5	-5	-4	-4	-5	-10		10	0	5	5	4	0	0	6	6	4	5
10000	-6	-6	-6	-2	-2	-5	-10		6	2	5	2	3	0	-1	7	7	6	6
18000	-5	-2	-4	-2	-2	-5	-10		4	2	4	2	3	-2	-3	10	9	6	7
ALBACCK AFE	TC					RAMEY AFE													
5000	-11	-4	-7	-6	-6	-11	-12		12	4	7	6	7	3	2	6	5	4	5
10000	-7	-9	-9	-9	-9	-10	-12		7	3	9	4	5	1	0	6	6	6	6
18000	-5	-2	-7	-4	-4	-10	-12		4	2	6	4	4	-1	-2	9	5	6	7
ALBACCK AFE	TC					SAN JOSE													
5000	7	7	0	0	0	-1	-2		-7	-7	0	1	-2	-8	-9	6	6	4	4
10000	6	6	16	7	5	4	3		-7	-7	-16	-6	-14	-16	-16	6	6	6	6
18000	6	4	13	7	7	1	0		-6	-4	-12	-7	-14	-15	-15	10	5	7	8

*HEADINGS--COMPUTED FOR A 140-KT AIRSPEED.

**A--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
+ PLUS SIGN GIVES HEADINGS.

STATION	MONTH				MONTH				MONTH				MONTH				STATION
	JAN	FEB	MAR	APR	JAN	FEB	MAR	APR	JAN	FEB	MAR	APR	JAN	FEB	MAR	APR	
ALBUQUERQUE AFB	TC	5	3	0	4	1	-1	-1	-6	-2	1	-4	-8	-8	-10	-10	629 N.M.I.
BUCC	6	6	14	7	6	6	6	6	-6	-6	-6	-6	-6	-6	-6	-6	6 6 4 5
LOUCC	4	3	12	0	6	6	6	6	-3	-3	-3	-3	-3	-3	-3	-3	10 6 6 5
ALBUQUERQUE AFB	TC	-2	-3	-3	-3	-3	-3	-3	2	4	3	3	1	1	0	0	1858 N.M.I.
BUCC	-2	-4	-4	-4	-4	-4	-4	-4	2	4	3	3	2	2	-1	-1	3 3 3 3
LOUCC	-2	-1	-3	-4	-4	-4	-4	-4	2	4	3	3	2	2	-2	-2	4 4 5 4
ALBUQUERQUE AFB	TC	-11	-2	-6	-5	-6	-10	-11	11	2	6	6	6	6	2	1	800 N.M.I.
BUCC	-1	-3	-6	-3	-6	-6	-10	-11	7	2	3	3	4	4	0	0	6 5 4 5
LOUCC	-3	-2	-6	-3	-6	-6	-10	-11	5	2	3	3	3	3	-1	-2	7 6 6 6
ALBUQUERQUE AFB	TC	4	2	1	1	-2	-3	-3	0	-4	-2	-1	-2	-6	-7	-7	1502 N.M.I.
BUCC	1	1	2	2	1	-3	-4	-4	-1	-2	-3	-2	-3	-7	-8	-8	7 6 4 6
LOUCC	-3	-4	2	2	-1	-3	-3	-3	0	-2	-3	-3	-2	-7	-9	-9	7 7 5 7
ALBUQUERQUE AFB	TC	-1	-4	-1	-2	-4	-2	-2	0	1	2	1	1	0	-1	-1	819 N.M.I.
BUCC	1	1	0	2	2	-1	-2	-2	-5	-1	-1	-2	-3	-6	-7	-7	5 3 4 4
LOUCC	1	0	0	0	0	-5	-6	-6	-1	0	0	-1	-1	-6	-7	-7	5 4 6 5
ALBUQUERQUE AFB	TC	5	3	3	3	3	3	3	-5	-6	-6	-6	-6	-6	-6	-6	545 N.M.I.
BUCC	6	6	14	6	6	6	6	6	-4	-4	-4	-4	-4	-4	-4	-4	6 6 6 6
LOUCC	4	3	11	6	6	6	6	6	-4	-3	-3	-3	-3	-3	-3	-3	10 9 7 8
ALBUQUERQUE AFB	TC	-10	-7	-6	-6	-6	-12	-13	12	6	7	7	8	5	4	4	653 N.M.I.
BUCC	-10	-6	-13	-6	-6	-6	-12	-13	11	7	6	6	5	5	5	5	5 5 3 4
LOUCC	-6	-3	-11	-6	-6	-6	-12	-13	6	3	11	7	7	1	0	0	9 6 6 5
ALBUQUERQUE AFB	TC	6	3	3	3	3	3	3	-6	-6	-6	-6	-6	-6	-6	-6	1647 N.M.I.
BUCC	12	14	11	10	12	12	12	12	-6	-6	-6	-6	-6	-6	-6	-6	8 7 6 7
LOUCC	24	25	17	17	22	22	22	22	-16	-16	-16	-16	-16	-16	-16	-16	10 9 7 9
ALBUQUERQUE AFB	TC	9	1	1	1	1	1	1	-6	-6	-6	-6	-6	-6	-6	-6	1417 N.M.I.
BUCC	13	11	5	6	10	10	10	10	-14	-14	-14	-14	-14	-14	-14	-14	10 9 7 8
LOUCC	13	10	19	15	16	16	16	16	-19	-21	-21	-21	-21	-21	-21	-21	11 11 8 10

OPERATIONALS--COMPUTED FOR A 120-KT AIRSPEED.
 **--LEAVES ANNUAL EQUIVALENT FEASIBLES FOR PUBLISHED PER CENT RELIABILITIES.
 PILES SIGN LEAVES MEANINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*										STANDARD DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	**A5C	A75	A85	JAN	APR	JUL	OCT	**A5U	A75	A85	
ALGER															
5000	TC	4	1	4	3	-2	-4	-7	-5	-1	-4	-4	-11	-13	986 N.MI.
10000		12	9	9	10	2	1	-14	-13	-10	-10	-12	-20	-22	10 7 9
18000		16	20	10	18	5	7	-22	-22	-21	-17	-21	-30	-33	12 12 9 11 13
ALGER															
5000	TC	-1	-2	0	-2	-5	-10	0	0	1	0	0	-7	-8	716 N.MI.
10000		1	3	4	3	2	-7	-4	-4	-5	-5	-5	-13	-16	12 11 9 10
18000		6	11	7	6	-4	-7	-5	-10	-14	-10	-11	-21	-24	14 13 10 13
ALGER															
5000	TC	-2	-3	-1	-3	-11	-12	4	1	3	3	2	-5	-7	796 N.MI.
10000		0	0	0	-1	-5	-11	1	-1	-2	-1	-1	-9	-11	12 11 9 11
18000		0	2	0	-1	-13	-10	2	-3	-6	-4	-3	-14	-17	14 13 10 12
ALGER															
5000	TC	-3	-0	-3	-6	-13	-15	7	2	6	2	4	-3	-5	513 N.MI.
10000		-4	-4	-5	-6	-14	-17	7	2	3	4	3	-4	-6	12 12 10 12
18000		-8	-8	-9	-10	-22	-25	11	3	4	5	5	-5	-8	14 14 10 12
ALGER															
5000	TC	2	0	3	1	-5	-6	-5	-3	-1	-3	-3	-10	-12	734 N.MI.
10000		11	8	8	8	5	-1	-12	-11	-9	-9	-11	-19	-21	12 11 8 10
18000		16	20	14	15	5	2	-16	-15	-21	-16	-19	-29	-31	13 13 10 13
ALGER															
5000	TC	0	2	5	5	0	-1	-9	-6	-2	-5	-6	-11	-12	1468 N.MI.
10000		14	10	10	11	5	4	-15	-15	-11	-11	-13	-20	-21	8 8 6 7
18000		25	15	16	15	11	5	-28	-27	-16	-18	-22	-31	-33	10 10 8 9
ALGER															
5000	TC	-3	-3	-2	-5	-13	-15	6	2	5	1	3	-4	-6	609 N.MI.
10000		-2	-2	-3	-4	-12	-15	5	0	1	1	1	-6	-8	12 12 10 12
18000		-4	-3	-5	-6	-18	-21	7	0	0	0	1	-9	-12	14 14 10 12
ALGER															
5000	TC	-2	-4	-1	-4	-11	-13	4	2	4	1	2	-4	-6	684 N.MI.
10000		-1	0	0	-2	-10	-12	2	0	-1	-1	0	-9	-11	12 11 9 11
18000		-1	1	-1	-2	-14	-17	3	-3	-3	-3	-3	-14	-16	14 13 10 12
ALGER															
5000	TC	0	0	2	1	-3	-4	-2	0	0	-2	-2	-6	-7	1718 N.MI.
10000		-5	-2	-4	-5	-11	-12	4	8	1	3	3	-1	-2	6 7 6 6
18000		-14	-16	-5	-8	-11	-15	9	13	4	7	7	1	0	8 8 6 8

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
+ PLUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN FEET FOR GREAT CIRCLE AIR ROUTES

ROUTE IN FEET	EQUIVALENT HEADINGS										STANDARD DEVIATION			
	DIRECT					RETURN								
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	JAN	FEB	MAR	APR
ALGER 5000 10000 15000	TC 5 14 19	ULVANDANIP 2 9 15	-1 5 10	-2 3 8	-5 -10 -15	-8 -13 -18	-3 -10 -18	-4 -10 -18	-5 -12 -21	-10 -18 -25	-11 -20 -31	1762 N.MI. 6 7 9	9 10 14	8 9 11
ALGER 5000 10000 15000	TC 5 14 19	MZNA AB 2 9 15	-2 -8 -13	-12 -17 -22	-5 -10 -15	-8 -13 -18	0 -5 -10	-2 -7 -12	-4 -9 -14	-5 -10 -15	-7 -12 -18	812 N.MI. 9 10 11	12 14 19	11 12 13
ALGER 5000 10000 15000	TC 5 14 19	ISTANBUL 2 9 15	-2 -8 -13	-4 -9 -14	-5 -10 -15	-8 -13 -18	-3 -8 -13	-4 -9 -14	-4 -9 -14	-10 -18 -25	-12 -20 -30	1226 N.MI. 7 8 9	11 12 16	9 11 13
ALGER 5000 10000 15000	TC 5 14 19	LAJES 2 9 15	-2 -8 -13	-4 -9 -14	-5 -10 -15	-8 -13 -18	-3 -8 -13	-4 -9 -14	-4 -9 -14	-10 -18 -25	-12 -20 -30	1148 N.MI. 7 8 9	11 12 16	9 11 13
ALGER 5000 10000 15000	TC 5 14 19	KZNC 2 9 15	-2 -8 -13	-4 -9 -14	-5 -10 -15	-8 -13 -18	-3 -8 -13	-4 -9 -14	-4 -9 -14	-10 -18 -25	-12 -20 -30	1513 N.MI. 6 7 8	7 8 11	6 7 8
ALGER 5000 10000 15000	TC 5 14 19	KEFLAVIK 2 9 15	-2 -8 -13	-4 -9 -14	-5 -10 -15	-8 -13 -18	-3 -8 -13	-4 -9 -14	-4 -9 -14	-10 -18 -25	-12 -20 -30	1075 N.MI. 8 9 10	11 12 16	10 11 14
ALGER 5000 10000 15000	TC 5 14 19	LAGCS 2 9 15	-2 -8 -13	-4 -9 -14	-5 -10 -15	-8 -13 -18	-3 -8 -13	-4 -9 -14	-4 -9 -14	-10 -18 -25	-12 -20 -30	1791 N.MI. 5 6 7	6 7 10	5 6 7
ALGER 5000 10000 15000	TC 5 14 19	LAJES FIELD 2 9 15	-2 -8 -13	-4 -9 -14	-5 -10 -15	-8 -13 -18	-3 -8 -13	-4 -9 -14	-4 -9 -14	-10 -18 -25	-12 -20 -30	1428 N.MI. 7 8 9	9 11 15	7 8 9
ALGER 5000 10000 15000	TC 5 14 19	LAS PALMAS 2 9 15	-2 -8 -13	-4 -9 -14	-5 -10 -15	-8 -13 -18	-3 -8 -13	-4 -9 -14	-4 -9 -14	-10 -18 -25	-12 -20 -30	1072 N.MI. 8 9 10	8 11 14	7 8 9

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.
 **A--LENGTHS ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
 ***S--SICR LENGTHS HEADINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS																								STANDARD DEVIATION
	DIRECT												RETURN												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
ALGER	TC	TC	LISBON	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	-6	-4	-4	-5	-12	-13	-5	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	
10000	-11	-9	-11	-11	-15	-22	-11	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	
15000	-20	-19	-17	-15	-25	-32	-15	-25	-15	-25	-15	-25	-15	-25	-15	-25	-15	-25	-15	-25	-15	-25	-15	-25	
ALGER	TC	TC	LUCCA, MALTA	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	6	5	2	4	-2	-4	-2	-4	-2	-4	-2	-4	-2	-4	-2	-4	-2	-4	-2	-4	-2	-4	-2	-4	
10000	14	13	10	10	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
15000	20	21	19	16	16	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
ALGER	TC	TC	LUCCA	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	5	6	2	4	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	
10000	13	13	8	7	10	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
15000	23	22	5	13	15	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
ALGER	TC	TC	MILCENTALL	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	-7	-2	-4	-2	-4	-13	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	
10000	-6	-2	-1	-3	-4	-14	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	
15000	-14	-5	-3	-5	-7	-21	-7	-16	-7	-16	-7	-16	-7	-16	-7	-16	-7	-16	-7	-16	-7	-16	-7	-16	
ALGER	TC	TC	MOSCOW	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	2	4	4	5	1	-3	1	-4	1	-4	1	-4	1	-4	1	-4	1	-4	1	-4	1	-4	1	-4	
10000	5	5	6	6	4	-3	4	-1	4	-1	4	-1	4	-1	4	-1	4	-1	4	-1	4	-1	4	-1	
15000	8	12	5	5	7	-3	7	-1	7	-1	7	-1	7	-1	7	-1	7	-1	7	-1	7	-1	7	-1	
ALGER	TC	TC	NAPLES	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	1	2	0	2	1	-7	1	-3	1	-3	1	-3	1	-3	1	-3	1	-3	1	-3	1	-3	1	-3	
10000	5	6	7	7	7	-3	7	-3	7	-3	7	-3	7	-3	7	-3	7	-3	7	-3	7	-3	7	-3	
15000	5	15	19	15	14	3	14	3	14	3	14	3	14	3	14	3	14	3	14	3	14	3	14	3	
ALGER	TC	TC	NIAPEY	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	4	1	0	2	1	-4	1	-3	1	-3	1	-3	1	-3	1	-3	1	-3	1	-3	1	-3	1	-3	
10000	-1	-4	1	1	-1	-8	-1	-6	-1	-6	-1	-6	-1	-6	-1	-6	-1	-6	-1	-6	-1	-6	-1	-6	
15000	-3	-5	-4	-5	-4	-14	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	-4	-12	
ALGER	TC	TC	NICCSIA	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	7	6	2	4	4	-1	4	-1	4	-1	4	-1	4	-1	4	-1	4	-1	4	-1	4	-1	4	-1	
10000	14	14	11	10	14	5	14	5	14	5	14	5	14	5	14	5	14	5	14	5	14	5	14	5	
15000	22	23	19	17	15	12	15	12	15	12	15	12	15	12	15	12	15	12	15	12	15	12	15	12	
ALGER	TC	TC	UPAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	-1	-2	-1	-2	-3	-12	-3	-10	-3	-12	-3	-10	-3	-12	-3	-10	-3	-12	-3	-10	-3	-12	-3	-10	
10000	-12	-12	-7	-10	-11	-20	-11	-20	-11	-20	-11	-20	-11	-20	-11	-20	-11	-20	-11	-20	-11	-20	-11	-20	
15000	-15	-21	-15	-16	-14	-30	-14	-30	-14	-30	-14	-30	-14	-30	-14	-30	-14	-30	-14	-30	-14	-30	-14	-30	

HEADWINDS--COMPUTED FOR A 100-MT AIRSPEED.

***--INDICATES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

PLAS SIGN INDICATES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

FLIGHT IN FEET	EQUVALENT HEADWINDS												STANDARD DEVIATION											
	DIRECT						RETURN																	
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ALGER	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SCCC	-6	-5	-6	-6	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
10000	-10	-6	-6	-7	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8
10000	-17	-10	-11	-11	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SCCC	-2	-2	-10	-3	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
10000	-5	-5	-5	-2	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
10000	-12	-13	-11	-6	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SCCC	-7	-6	-7	-4	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
10000	-14	-14	-12	-10	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13
10000	-20	-27	-18	-17	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SCCC	-7	-6	-4	-5	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
10000	-14	-14	-12	-10	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13
10000	-20	-27	-18	-17	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SCCC	-7	-6	-4	-5	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
10000	-14	-14	-12	-10	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13
10000	-20	-27	-18	-17	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SCCC	-7	-6	-4	-5	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
10000	-14	-14	-12	-10	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13
10000	-20	-27	-18	-17	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SCCC	-7	-6	-4	-5	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
10000	-14	-14	-12	-10	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13
10000	-20	-27	-18	-17	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SCCC	-7	-6	-4	-5	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
10000	-14	-14	-12	-10	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13
10000	-20	-27	-18	-17	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SCCC	-7	-6	-4	-5	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
10000	-14	-14	-12	-10	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13
10000	-20	-27	-18	-17	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SCCC	-7	-6	-4	-5	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
10000	-14	-14	-12	-10	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13
10000	-20	-27	-18	-17	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SCCC	-7	-6	-4	-5	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
10000	-14	-14	-12	-10	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13
10000	-20	-27	-18	-17	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

***--CIRCLES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 PLANE SIGN DENOTES HEADWINDS.

EQUIVALENT READINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

[illegible]

*MEASURING--CLAPNET FOR A 120-KT AIRSPEED.

***--LEAVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN LEAVES HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION			
	DIRECT					RETURN					JAN APR JUL OCT			
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**ASD	A75	A85
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	5	6	2	4	4	C	-1	-5	-6	-2	-4	-5	-5	-10
10000	-1	C	4	-2	C	-5	-7	0	-2	-4	2	-1	-7	-8
18000	-5	-3	6	-8	-3	-12	-15	3	C	-6	7	0	-8	-9
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-7	-3	-4	-6	-12	-13	9	7	2	4	5	C	-1
10000	-16	-16	-11	-11	-14	-21	-23	15	15	11	11	12	6	4
18000	-30	-25	-17	-15	-23	-33	-36	27	27	16	18	21	12	10
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	C	1	5	4	2	-3	-4	0	-1	-5	-4	-3	-9	-10
10000	-6	-3	1	-5	-3	-11	-13	3	1	-1	5	1	-5	-7
18000	-15	-5	2	-10	-8	-18	-21	7	2	-3	8	2	-7	-9
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-7	-8	-9	-6	-8	-13	-14	6	5	9	6	6	1	0
10000	-12	-10	-11	-5	-11	-17	-16	10	6	10	8	9	3	1
18000	-21	-16	-17	-16	-18	-26	-28	16	12	15	13	14	5	3
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	C	C	-5	0	-1	-7	-5	-1	-1	5	C	0	-6	-7
10000	C	C	0	0	C	-7	-8	-2	-2	-1	-1	-2	-9	-10
18000	-4	-3	-2	-3	-3	-13	-15	-1	-2	C	-1	-1	-11	-13
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	2	0	4	2	C	-1	-6	-3	0	-3	-3	-7	-8
10000	2	4	1	0	1	-2	-3	-3	-5	-1	0	-2	-6	-8
18000	-5	2	3	-3	C	-6	-7	1	-4	-5	2	-2	-7	-8
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-8	-6	-7	-5	-7	-13	-14	7	6	6	5	5	C	0
10000	-14	-14	-12	-10	-15	-20	-21	15	13	12	9	11	5	3
18000	-25	-25	-20	-18	-22	-31	-34	21	22	19	16	19	10	8
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-4	-5	-10	-4	-7	-13	-14	4	5	11	4	6	C	-2
10000	-10	-10	-8	-6	-5	-17	-15	6	8	8	5	7	C	-2
18000	-21	-21	-14	-11	-17	-28	-31	13	16	15	8	12	1	-1
AMMAN	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-8	-6	-2	-4	-5	-10	-11	7	6	2	4	4	C	-1
10000	-16	-15	-10	-12	-13	-15	-21	15	14	13	11	12	6	5
18000	-22	-27	-17	-18	-22	-31	-33	25	25	17	17	20	13	11

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN LENGTHS HEADWINDS.

EQUIVALENT HEADINGS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

WEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	DIRECT				RETURN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	JAN	APR	JUL	OCT	JAN	APR	JUL	OCT	00A50	A75	A85																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
AMMAN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														</

HEADING--COMPUTED FOR A 140-KT AIRSPEED.

---CENTIES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
PLAS SIGN CENTES HEADINGS.

EQUIVALENT MEASUREMENTS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT MEASUREMENTS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES										STANDARD DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	MEAN	JAN	APR	JUL	OCT	MEAN	JAN	APR	JUL	OCT	MEAN
ANCHERS AFE															
5000	-1	-3	-2	-1	-1.75	0	3	2	1	1.5	7	7	5	6	1601 N.M.I.
10000	0	-3	-3	-2	-2	-3	1	2	2	0	0	0	6	7	
15000	0	0	-2	-4	-2	-7	-6	1	2	-2	11	11	6	9	
ANCHERS AFE															
5000	-2	-3	-6	-4	-3.75	0	2	0	3	3	7	7	5	7	1794 N.M.I.
10000	4	0	-4	-2	-1	-7	-1	3	1	0	9	0	6	7	
15000	10	5	-1	0	3.75	-17	-15	0	-2	-7	11	11	6	9	
ANCHERS AFE															
5000	-1	0	0	-1	-0.25	-1	0	0	0	0	14	13	9	13	235 N.M.I.
10000	-2	-1	-2	-3	-2	-5	0	0	1	-1	16	16	10	14	
15000	-15	-5	-1	-9	-7.75	-6	-7	0	1	-3	22	22	12	21	
ANCHERS AFE															
5000	-12	-9	-5	-5	-9.25	11	6	5	4	6	10	10	7	9	1219 N.M.I.
10000	-22	-17	-6	-8	-13.25	21	15	5	7	11	11	11	7	10	
15000	-41	-24	-5	-26	-23.75	35	23	5	17	17	16	15	0	14	
ANCHERS AFE															
5000	-11	-8	-4	-4	-6.75	10	7	4	3	5	12	11	0	10	690 N.M.I.
10000	-21	-16	-6	-7	-12.75	17	12	0	6	10	13	13	9	12	
15000	-35	-25	-7	-26	-23.75	29	17	0	16	15	18	18	10	17	
ANCHERS AFE															
5000	-13	-9	-5	-5	-9.25	12	5	5	5	7	11	10	7	9	1061 N.M.I.
10000	-24	-18	-7	-9	-14.25	22	16	0	0	12	11	11	0	11	
15000	-42	-30	-6	-22	-24.75	37	24	5	18	19	17	16	9	16	
ANCHERS AFE															
5000	-12	-10	-5	-5	-9.25	12	5	5	5	7	11	11	0	10	691 N.M.I.
10000	-25	-18	-7	-9	-14.25	23	17	7	0	13	12	12	0	12	
15000	-44	-30	-8	-23	-23.75	38	25	7	19	20	18	17	10	17	
ANCHERS AFE															
5000	-11	-8	-4	-4	-6.75	10	7	4	4	6	12	12	0	11	544 N.M.I.
10000	-22	-17	-6	-7	-12.75	16	14	7	6	10	14	14	9	13	
15000	-41	-27	-9	-22	-23.75	32	15	8	18	17	20	20	11	19	
ANCHERS AFE															
5000	-7	-5	-2	-3	-3.25	5	3	2	3	3	14	13	9	12	242 N.M.I.
10000	-15	-10	-5	-8	-9.25	7	6	4	5	5	16	16	10	14	
15000	-32	-18	-7	-18	-16.75	15	6	5	11	8	22	22	12	21	

MEASUREMENTS--COMPUTED FOR A 100-MT SPEED.

000--LARGEST ANNUAL EQUIVALENT MEASUREMENTS FOR INDICATED PER CENT RELIABILITIES.

PLAS SICA LARGEST MEASUREMENTS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E C L I V A L E N T H E A D I N G S																STANDARD DEVIATION	
	DIRECT						RETURN											
	-AA	APR	JUL	CCT	0000	075	AB5	JAN	APR	JUL	OCT	0000	075	AB5	JAN	APR		JUL
ANCHERS AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-11	-8	-4	-4	-7	-14	-16	9	7	4	3	5	-1	-3	12	11	8	11
10000	-21	-16	-6	-7	-12	-22	-25	17	13	6	6	10	1	0	13	13	9	13
18000	-35	-25	-7	-21	-21	-37	-41	29	17	6	16	15	3	1	19	19	10	18
ANCHERS AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	0	0	1	2	0	-6	-7	-1	-1	-2	-3	-2	-9	-10	10	10	6	9
10000	0	0	0	1	0	-6	-8	-5	-2	-2	-4	-4	-11	-12	11	11	9	10
18000	0	0	0	1	0	-5	-11	-15	-6	-4	-10	-9	-19	-22	15	15	11	15
ANCHERS AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	0	0	0	0	0	-2	-4	-4	-5	-7	-8	-8	-15	-17	12	12	9	11
10000	13	7	0	0	0	3	0	-16	-10	-10	-13	-13	-22	-24	14	13	10	12
18000	22	10	12	16	15	3	1	-34	-18	-16	-25	-23	-36	-39	19	18	12	16
ANCHERS AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-3	-3	-3	-2	-2	-5	-13	1	2	3	1	1	-3	-4	9	9	6	8
10000	0	-3	-2	-3	-2	-5	-10	-4	1	2	2	0	-6	-7	11	10	7	9
18000	-1	0	-2	-5	-3	-11	-13	-9	-7	1	2	-2	-12	-14	14	14	8	12
ANCHERS AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-4	-3	-2	-1	-3	-8	-9	3	2	2	0	2	-2	-3	8	7	5	7
10000	-5	-7	-2	-3	-5	-11	-12	6	5	2	2	3	-1	-2	8	8	5	7
18000	-15	-12	-1	-9	-10	-15	-21	10	7	1	7	5	-1	-2	12	11	6	10
ANCHERS AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	10	7	9	9	0	1	0	-12	-8	-9	-10	-10	-10	-19	13	12	9	10
10000	21	14	12	15	15	6	4	-25	-17	-13	-17	-18	-27	-30	15	14	10	13
18000	33	15	16	20	23	11	8	-42	-26	-21	-31	-29	-43	-47	20	19	12	19
ANCHERS AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-5	-2	-2	-4	-10	-11	4	4	3	2	3	-2	-4	10	9	7	9
10000	-8	-7	-3	-4	-4	-12	-14	4	4	3	3	3	-3	-4	11	11	7	10
18000	-10	-11	-4	-10	-10	-20	-23	5	2	3	6	3	-4	-6	15	15	8	13
ANCHERS AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-4	-2	-2	-4	-10	-12	4	3	2	2	2	-3	-5	10	10	7	10
10000	-7	-7	-3	-3	-5	-13	-15	3	4	2	3	2	-4	-6	12	12	9	11
18000	-17	-16	-4	-10	-10	-20	-23	2	0	3	5	2	-6	-9	16	16	9	15
ANCHERS AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-8	-5	-2	-3	-5	-12	-14	6	4	2	2	3	-3	-5	12	12	8	11
10000	-15	-12	-4	-5	-5	-18	-21	9	6	4	4	5	-2	-4	14	14	9	13
18000	-32	-15	-6	-18	-17	-33	-36	17	5	5	12	9	-1	-4	20	20	11	19

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

000--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
NIALS SIGN GIVES HEADINGS.

EQUIVALENT HEADINGS AND STANCAHL DEVIATION IN ANGTS FOR GREAT CIRCLE AIR ROUTES

RETURN IN FEET	EQUIVALENT HEADINGS										STANCAHL DEVIATION				
	DIRECT					RETURN									
	JAN	APR	JUL	OCT	NOV	JAN	APR	JUL	OCT	NOV	JAN	APR	JUL	OCT	
ANDREWS AFE	TC	TC	JACKSONVILLE												
SUCC	-6	-5	-2	-2	-5	-12	-14								
IGUCC	-14	-12	-4	-5	-5	-10	-20								
IBUCC	-30	-10	-5	-10	-16	-30	-34								
ANDREWS AFE	TC	TC	KEY WEST												
SUCC	-6	-4	-2	-2	-4	-10	-12								
IGUCC	-5	-7	-3	-4	-6	-13	-15								
IBUCC	-15	-11	-4	-11	-11	-21	-24								
ANDREWS AFE	TC	TC	KINGSTON AFE												
SUCC	10	8	3	3	5	-1	-3								
IGUCC	22	13	7	7	11	2	6								
IBUCC	34	25	10	13	17	6	4								
ANDREWS AFE	TC	TC	KINGSTON												
SUCC	-2	-3	-3	-2	-3	-6	-10								
IGUCC	6	-9	-2	-3	-3	-6	-10								
IBUCC	-4	-2	-2	-6	-4	-11	-13								
ANDREWS AFE	TC	TC	LEWIS AFE												
SUCC	7	5	0	0	6	-2	-4								
IGUCC	15	10	5	11	11	1	5								
IBUCC	26	13	12	15	16	4	0								
ANDREWS AFE	TC	TC	MANAGUA												
SUCC	-2	-3	-1	0	-2	-6	-8								
IGUCC	-5	-5	-1	-3	-4	-5	-10								
IBUCC	-11	-7	-2	-7	-7	-14	-16								
ANDREWS AFE	TC	TC	PECELLIA												
SUCC	6	-3	-2	-1	-2	-6	-7								
IGUCC	6	-3	-3	-2	-2	-7	-8								
IBUCC	6	0	-2	-4	-2	-8	-9								
ANDREWS AFE	TC	TC	MARSAUSSLAH												
SUCC	6	2	5	6	4	-1	-3								
IGUCC	10	5	7	5	6	0	-1								
IBUCC	20	10	10	10	13	3	1								
ANDREWS AFE	TC	TC	NEW ORLEANS												
SUCC	-14	-9	-4	-4	-7	-14	-16								
IGUCC	-43	-17	-6	-8	-13	-25	-25								
IBUCC	-41	-20	-6	-21	-23	-35	-42								

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

STANCAHL DEVIATION--COMPUTED FOR A 120-KT AIRSPEED. PER CENT RELIABILITIES.

PIALS SIGA DEVIATES HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET		EQUIVALENT HEADWINDS										STANDARD DEVIATION							
		DIRECT					RETURN												
		JAN	APR	JUL	OCT	MARCH	JAN	APR	JUL	OCT	MARCH	JAN	APR	JUL	OCT				
ANCHERS AFB		TC	TC	TC	TC	PATRICK AFB	4	3	2	1	2	1	2	-4	-5	661 N.M.I. 11 11 8 10 13 13 8 12 18 18 10 17			
5000		-4	-2	-2	-4	-12										1236 N.M.I. 9 9 6 8 10 10 7 9 14 14 7 12			
10000		-10	-5	-3	-7	-17	4	5	2	3	3	3	3	-4	-6	1320 N.M.I. 5 5 6 8 10 10 7 9 13 13 7 11			
15000		-22	-13	-4	-12	-26	7	3	3	7	4	4	4	-5	-8	1776 N.M.I. 7 7 5 6 8 8 5 7 10 10 6 9			
ANCHERS AFB		TC	TC	TC	TC	PONTIAC AFB	1	2	3	2	2	2	2	-3	-4	1642 N.M.I. 8 8 5 7 10 10 7 9 14 14 6 10			
5000		-3	-3	-3	-3	-10										1274 N.M.I. 9 9 6 8 10 10 7 9 14 14 7 11			
10000		-2	-2	-2	-1	-9	1	0	2	1	0	0	0	-7	-9	339 N.M.I. 13 13 9 12 15 15 10 14 21 21 12 20			
15000		2	-1	-4	-1	-10	-6	-5	1	0	-4	-4	-4	-13	-16	1905 N.M.I. 9 9 7 8 11 11 8 10 14 14 10 14			
ANCHERS AFB		TC	TC	TC	TC	RAPEY AFB	0	1	4	2	2	2	2	-3	-4	1586 N.M.I. 8 8 5 7 8 8 5 7 11 11 6 10			
5000		-1	-4	-4	-3	-9	0	1	4	2	2	2	2	-3	-4				
10000		3	-1	-4	0	-6	-9	-1	2	0	-1	-1	-1	-9	-10				
15000		6	7	-1	1	-7	-17	-14	0	-1	-7	-7	-7	-17	-20				
ANCHERS AFB		TC	TC	TC	TC	SAN JOSE	0	2	1	0	0	0	0	-3	-4				
5000		0	-1	-1	-2	-7	0	2	1	0	0	0	0	-3	-4				
10000		-3	-4	-1	-2	-9	1	2	1	2	1	1	1	-3	-4				
15000		-8	-5	-2	-6	-13	0	0	1	4	1	1	1	-4	-6				
ANCHERS AFB		TC	TC	TC	TC	SAN SALVADOR	2	2	1	0	1	1	1	-3	-4				
5000		-3	-1	-1	-2	-8	2	2	1	0	1	1	1	-3	-4				
10000		-7	-2	-2	-3	-11	3	5	1	2	2	2	2	-1	-2				
15000		-17	-11	-2	-5	-20	4	5	2	6	4	4	4	-1	-2				
ANCHERS AFB		TC	TC	TC	TC	SANTO DOMINGO	0	1	3	2	2	2	2	-3	-5				
5000		-2	-3	-3	-3	-9	0	1	3	2	1	1	1	-3	-5				
10000		4	-2	-2	-1	-9	-7	0	2	1	-1	-1	-7	-9	-9				
15000		5	5	-1	0	-8	-14	-11	0	0	-5	-5	-15	-18	-18				
ANCHERS AFB		TC	TC	TC	TC	SEAFAR AFB	6	4	2	3	3	3	3	-4	-6				
5000		-6	-2	-2	-4	-15	11	10	3	5	7	7	7	-1	-3				
10000		-10	-6	-6	-6	-24	21	11	6	14	12	12	12	0	-3				
15000		-20	-11	-8	-20	-30													
ANCHERS AFB		TC	TC	TC	TC	SCHLESFELD	-4	-2	-3	-5	-4	-4	-4	-10	-11				
5000		5	4	2	4	-4	-4	-5	-5	-7	-7	-7	-7	-14	-16				
10000		6	2	3	3	-4	-10	-5	-5	-7	-7	-7	-7	-14	-16				
15000		11	3	4	0	-4	-21	-11	-9	-15	-14	-14	-24	-26	-26				
ANCHERS AFB		TC	TC	TC	TC	TOLSON AFB	2	3	1	0	1	1	1	-3	-4				
5000		-3	-3	-1	0	-7	2	4	1	0	0	0	0	-3	-4				
10000		-7	-6	-2	-3	-11	4	4	1	2	2	2	2	-2	-3				
15000		-15	-5	-2	-3	-16	6	4	2	5	3	3	3	-2	-3				

* HEADWINDS--COMPUTED FOR A 10-KNOT AIRSPEED.
 ** *--LEASTS SQUARES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 PLUS SIGN INDICATES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT MEAN AIR SPEED*										STANDARD DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	**AFC	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85	
ANCHERS AFE															
5000	10	6	0	7	7	-1	-3	-12	-6	-7	-17	-19	15	14	283 N.MI.
10000	16	10	11	11	12	3	0	-25	-16	-13	-28	-30	17	17	10 12
15000	20	16	13	21	18	5	2	-43	-26	-10	-27	-48	24	23	11 15
ANCHERS AFE															
5000	-1	-2	-4	-2	-3	-7	-8	0	1	2	1	-3	7	7	1652 N.MI.
10000	2	-2	-4	-2	-2	-7	-8	-5	0	2	0	-7	9	8	5 7
15000	4	4	-2	-3	0	-6	-8	-12	-5	0	-4	-15	11	11	6 9
ANKARA															
5000	-6	-5	0	-4	-4	-14	-14	5	4	4	2	-4	14	11	454 N.MI.
10000	-15	-13	-10	-5	-12	-21	-23	15	12	9	10	0	14	14	9 10
15000	-21	-22	-17	-17	-20	-31	-34	17	16	14	15	1	20	18	10 13
ANKARA															
5000	-7	-5	-8	-6	-7	-14	-15	6	5	6	6	-2	12	10	964 N.MI.
10000	-12	-10	-11	-5	-11	-15	-21	12	9	11	10	0	13	12	9 9
15000	-16	-15	-15	-17	-18	-28	-31	14	12	10	14	1	18	16	10 12
ANKARA															
5000	2	5	10	5	6	0	-1	-4	-5	-4	-6	-14	11	9	680 N.MI.
10000	14	10	6	7	5	1	0	-15	-11	-8	-10	-20	11	11	7 8
15000	15	10	15	13	10	6	3	-24	-22	-16	-20	-33	17	16	10 11
ANKARA															
5000	-7	-5	-5	-7	-6	-14	-15	0	5	6	6	-1	11	9	1255 N.MI.
10000	-12	-10	-11	-5	-11	-16	-20	11	6	8	9	0	12	12	8 9
15000	-16	-14	-18	-17	-17	-27	-30	14	10	14	13	1	17	15	9 11
ANKARA															
5000	-7	-4	-7	-5	-6	-12	-14	6	4	5	5	-2	11	9	1508 N.MI.
10000	-12	-10	-12	-5	-12	-16	-20	12	9	11	10	1	11	11	8 8
15000	-16	-15	-20	-16	-18	-27	-30	14	13	15	15	4	15	14	10 10
ANKARA															
5000	-7	-5	-4	-5	-6	-12	-15	6	5	5	4	-4	13	10	690 N.MI.
10000	-12	-10	-11	-5	-12	-16	-20	12	11	13	13	0	13	12	9 10
15000	-16	-15	-21	-17	-20	-31	-34	17	16	15	17	3	19	17	10 12
ANKARA															
5000	5	5	5	4	4	-3	-5	0	-1	-9	-4	-12	11	9	606 N.MI.
10000	-2	-2	1	-1	-1	-5	-11	0	0	-2	0	-10	12	12	7 8
15000	-7	-5	3	-4	-4	-13	-16	-1	-4	-6	-3	-13	19	16	9 11

*HEADINGS—COMPUTED FOR A 10-KT AIRSPEED.

**A—GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
***SICR GIVES HEADINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E C U L I V A L E N T M E A S U R E M E N T S												STANDARD DEVIATION			
	DIRECT						RETURN						JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	00ASU	00ASU	JAN	APR	JUL	OCT	00ASU	00ASU	00ASU	00ASU	00ASU	00ASU
ANKARA																
5000	-7	-5	-8	-6	-7	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13
10000	-13	-10	-12	-9	-12	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15
15000	-12	-15	-19	-18	-14	-27	-30	-27	-30	-27	-30	-27	-30	-27	-30	-30
ANKARA																
5000	-7	-5	-5	-8	-7	-14	-15	-14	-15	-14	-15	-14	-15	-14	-15	-15
10000	-13	-10	-11	-5	-11	-15	-20	-11	-15	-20	-15	-20	-15	-20	-15	-20
15000	-12	-14	-15	-17	-14	-28	-30	-14	-28	-30	-28	-30	-28	-30	-28	-30
ANKARA																
5000	4	5	10	5	6	5	3	5	5	5	5	5	5	5	5	5
10000	11	11	7	6	4	2	1	4	2	1	4	2	1	4	2	1
15000	12	10	12	8	13	5	3	13	5	3	13	5	3	13	5	3
ANKARA																
5000	5	5	8	5	5	-1	-3	-1	-3	-1	-3	-1	-3	-1	-3	-3
10000	14	11	5	9	10	2	0	10	2	0	10	2	0	10	2	0
15000	20	20	17	10	16	6	4	16	6	4	16	6	4	16	6	4
ANKARA																
5000	-7	-5	-5	-7	-6	-14	-16	-7	-14	-16	-7	-14	-16	-7	-14	-16
10000	-12	-10	-11	-9	-11	-16	-20	-11	-16	-20	-16	-20	-16	-20	-16	-20
15000	-10	-13	-18	-17	-17	-27	-30	-17	-27	-30	-27	-30	-27	-30	-27	-30
ANKARA																
5000	-6	-6	-7	-8	-7	-15	-17	-6	-15	-17	-6	-15	-17	-6	-15	-17
10000	-14	-12	-13	-5	-13	-24	-24	-13	-24	-24	-24	-24	-24	-24	-24	-24
15000	-21	-21	-19	-17	-20	-32	-35	-20	-32	-35	-32	-35	-32	-35	-32	-35
ANKARA																
5000	-6	-5	0	-4	-4	-12	-14	-4	-12	-14	-4	-12	-14	-4	-12	-14
10000	-14	-13	-10	-9	-12	-21	-23	-12	-21	-23	-21	-23	-21	-23	-21	-23
15000	-20	-21	-16	-16	-15	-30	-33	-16	-30	-33	-30	-33	-30	-33	-30	-33
ANKARA																
5000	4	6	7	2	4	5	5	4	5	5	4	5	5	4	5	5
10000	12	9	6	7	6	3	2	6	3	2	6	3	2	6	3	2
15000	25	22	10	13	10	5	7	10	5	7	10	5	7	10	5	7
ANKARA																
5000	4	5	5	3	4	5	5	4	5	5	4	5	5	4	5	5
10000	6	1	3	-1	6	-5	-6	-1	-5	-6	-5	-6	-5	-6	-5	-6
15000	-5	0	6	-5	-1	-5	-11	-1	-5	-11	-1	-5	-11	-1	-5	-11

HEADINGS—COMPUTED FOR A 120-KT AIRSPEED.

00A—GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS IN KNOTS FOR GREAT CIRCLE AIR ROUTES										STANDARD DEVIATION	
	DIRECT					RETURN						
	JAN	APR	JUL	OCT	***	APR	JUL	OCT	***	APR	JUL	OCT
ANKARA												
5000	-6	-4	-4	-4	-5	-10	-11			5	3	4
10000	-13	-11	-12	-10	-12	-18	-19			11	10	5
18000	-17	-16	-21	-17	-15	-27	-28			13	15	20
ANKARA												
5000	-7	-4	0	-4	-4	-11	-12			0	4	4
10000	-14	-13	-8	-9	-11	-15	-21			13	12	7
18000	-22	-22	-17	-17	-20	-30	-32			17	15	15
ANKARA												
5000	1	2	9	3	4	-1	-3			-1	-2	-9
10000	-1	0	2	-2	0	-7	-8			-1	-2	-3
18000	-5	0	5	-3	0	-10	-13			-4	-6	-7
ANKARA												
5000	-6	-5	-9	-7	-8	-14	-16			0	5	9
10000	-12	-5	-10	-10	-11	-18	-19			11	8	10
18000	-15	-12	-17	-17	-17	-27	-29			15	10	15
ANKARA												
5000	1	1	-3	1	0	-7	-9			-2	-1	2
10000	1	1	0	0	0	-7	-9			-3	-3	-1
18000	-3	-1	0	-2	-2	-12	-15			-2	-3	-2
ANKARA												
5000	-1	-5	-4	-5	-6	-12	-14			0	4	3
10000	-14	-14	-11	-5	-12	-24	-24			13	11	10
18000	-20	-20	-21	-17	-20	-30	-33			10	17	20
ANKARA												
5000	0	1	10	1	3	-4	-6			0	-1	-10
10000	0	-1	2	0	0	-6	-10			-1	-1	-3
18000	-1	0	4	0	0	-11	-14			-0	-7	-8
ANKARA												
5000	-6	-4	-2	-4	-4	-10	-11			4	4	1
10000	-14	-14	-10	-9	-12	-16	-20			12	11	9
18000	-15	-21	-20	-17	-20	-27	-29			15	15	19
ANKARA												
5000	-5	-4	-2	-4	-4	-10	-11			4	4	2
10000	-12	-12	-9	-9	-12	-17	-19			10	11	9
18000	-15	-20	-20	-16	-15	-27	-28			15	12	19

HEADWINDS--COMPUTED FOR A 100-KNOT AIRSPEED.

***--LEASTS SQUARE EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCARE DEVIATION IN ANOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANCARE DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT
ANKARA																
5000	-5	-5	-9	-8	-14	-10	7	5	8	7	6	6	0	0	10	1743 N.M.I.
10000	-14	-5	-10	-10	-11	-16	10	8	9	9	9	9	2	0	12	8 9
15000	-21	-14	-10	-10	-11	-27	10	10	14	14	13	3	3	1	16	11 8 10
ANKARA																
5000	-7	-5	-9	-6	-14	-10	0	5	9	6	6	0	-1	-1	12	1167 N.M.I.
10000	-14	-10	-11	-9	-11	-20	10	6	10	8	9	1	0	0	13	5 9 9
15000	-14	-13	-17	-17	-27	-30	14	10	16	13	13	3	0	0	17	12 9 11
ANKARA																
5000	-7	-5	-9	-6	-14	-10	0	5	9	6	6	0	-1	-1	12	935 N.M.I.
10000	-14	-10	-11	-9	-11	-20	10	6	10	8	9	1	0	0	13	10 8 9
15000	-14	-13	-17	-17	-27	-30	14	10	16	13	13	3	0	0	17	12 9 12
ANKARA																
5000	-7	-5	-9	-6	-14	-10	0	5	9	6	6	0	-1	-1	12	1290 N.M.I.
10000	-14	-10	-11	-9	-11	-20	10	6	10	8	9	1	0	0	13	10 8 10
15000	-14	-13	-17	-17	-27	-30	14	10	16	13	13	3	0	0	17	12 9 11
ANKARA																
5000	-7	-5	-9	-6	-14	-10	0	5	9	6	6	0	-1	-1	12	916 N.M.I.
10000	-14	-10	-11	-9	-11	-20	10	6	10	8	9	1	0	0	13	7 7 8
15000	-14	-13	-17	-17	-27	-30	14	10	16	13	13	3	0	0	17	10 9 10
ANKARA																
5000	-7	-5	-9	-6	-14	-10	0	5	9	6	6	0	-1	-1	12	497 N.M.I.
10000	-14	-10	-11	-9	-11	-20	10	6	10	8	9	1	0	0	13	5 7 9
15000	-14	-13	-17	-17	-27	-30	14	10	16	13	13	3	0	0	17	10 10 11
ANKARA																
5000	-7	-5	-9	-6	-14	-10	0	5	9	6	6	0	-1	-1	12	1671 N.M.I.
10000	-14	-10	-11	-9	-11	-20	10	6	10	8	9	1	0	0	13	7 7 8
15000	-14	-13	-17	-17	-27	-30	14	10	16	13	13	3	0	0	17	10 10 11
ANKARA																
5000	-7	-5	-9	-6	-14	-10	0	5	9	6	6	0	-1	-1	12	1025 N.M.I.
10000	-14	-10	-11	-9	-11	-20	10	6	10	8	9	1	0	0	13	7 7 8
15000	-14	-13	-17	-17	-27	-30	14	10	16	13	13	3	0	0	17	10 10 11
ANKARA																
5000	-7	-5	-9	-6	-14	-10	0	5	9	6	6	0	-1	-1	12	1087 N.M.I.
10000	-14	-10	-11	-9	-11	-20	10	6	10	8	9	1	0	0	13	7 7 8
15000	-14	-13	-17	-17	-27	-30	14	10	16	13	13	3	0	0	17	10 10 11

OPERATIONS--COMPUTED FOR A 140-KT AIRSPEED.
 ANNOTATIONS--ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN CONNOTES HEADWINDS.

EQUIVALENT MEANINGS ARE STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

FLIGHT IN FEET	EQUIVALENT MEANINGS												STANDARD DEVIATION			
	DIRECT						RETURN						JAN APR JUL OCT			
	JAN	APR	JUL	OCT	AT5	AT5	JAN	APR	JUL	OCT	AT5	AT5	JAN	APR	JUL	OCT
ALASKA																
5000	4	5	6	3	4	6	-4	-5	-6	-3	-5	-6	7	7	1506 N.M.I.	
10000	14	16	7	0	5	3	-13	-11	-7	-9	-10	-16	0	0	6	0
15000	22	13	13	15	16	10	-29	-25	-19	-17	-21	-30	13	12	9	10
ARIZONA																
5000	-3	-4	-5	-5	-6	-11	0	4	5	4	4	-1	10	5	7	0
10000	-13	-11	-12	-9	-12	-20	12	10	12	0	10	3	11	10	0	10
15000	-16	-17	-21	-17	-15	-27	14	15	20	15	16	7	15	13	10	13
ARIZONA																
5000	-1	-2	-1	0	-4	-5	0	1	1	0	0	-2	4	3	1933 N.M.I.	
10000	-3	-4	-5	-5	-4	-7	3	1	5	5	2	0	5	4	4	4
15000	-1	-3	0	-2	-2	-7	1	3	1	1	3	-3	7	6	7	5
ARIZONA																
5000	-3	-5	-9	-6	-6	-9	5	6	0	4	5	2	4	3	1037 N.M.I.	
10000	-4	-3	-3	-6	-5	-9	4	4	1	0	3	0	5	5	6	5
15000	-1	-2	2	-1	-1	-7	0	2	-4	0	0	-5	7	6	0	0
ARIZONA																
5000	6	4	3	4	4	1	-9	-3	-3	-4	-4	-7	4	3	1090 N.M.I.	
10000	1	3	6	0	6	-3	-1	-3	0	0	-1	-5	5	4	6	5
15000	-1	-2	0	0	-1	-7	0	2	0	0	0	-4	7	6	0	0
ARIZONA																
5000	6	0	0	0	0	-5	0	6	0	1	0	-5	0	4	7	0
10000	5	0	0	7	5	-1	-9	-7	-9	-8	-7	-14	10	5	10	9
15000	5	7	14	14	10	1	-12	-5	-19	-10	-15	-24	14	11	15	13
ARIZONA																
5000	-5	-5	-9	-5	-6	-11	0	2	2	4	4	0	0	0	1774 N.M.I.	
10000	-5	-4	-5	-3	-5	-11	2	0	1	0	0	-2	0	0	0	7
15000	-3	-5	-5	-4	-6	-16	-2	-1	-4	-4	-3	-12	13	11	14	11
ARIZONA																
5000	6	4	1	0	4	6	-8	-3	0	-5	-5	-10	0	6	7	0
10000	6	2	5	-2	1	-6	0	-1	-6	3	-1	-7	9	7	9	0
15000	1	-3	3	2	6	-4	-2	3	-6	-3	-2	-10	12	9	14	9
ARIZONA																
5000	14	6	3	0	1	2	-6	-6	-2	-7	-7	-11	5	5	7	7
10000	4	2	2	-1	1	-4	-2	-1	-2	1	-1	-6	0	6	0	7
15000	-2	-4	-7	-3	-4	-11	1	4	5	3	3	-3	10	0	12	0

MEANINGS--COMPUTED FOR A 120-KT AIRSPEED.
 MEANINGS--ANNUAL EQUIVALENT MEANINGS FOR INDICATED PER CENT RELIABILITIES.
 PLUS SIGN INDICATES HEADWINDS.

1339
IN
1913

ONEALIAS--COMPUTER FOR A 100-MT AIRSPEED.
 OSA--LARGEST ANNUAL EQUIVALENT HEADLINES FOR INDICATED PER CENT RELIABILITIES.
 RIALS SIX CEMENTS HEADLINES.

EQUIVALENT HEADWINDS AND STANARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

RETURN IN FEET	EQUILIBRIUM T M L A C D I A U S O												STANARC DEVIATION			
	DIRECT						RETURN									
	00A	00B	00C	00D	00E	00F	00G	00H	00I	00J	00K	00L	JAN	APR	JUL	OCT
ARGENTINA AS	TC	FCAT	DEANING													
5000	-12	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	10	10	10	10
10000	-15	-12	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	12	11	8	10
15000	-18	-15	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	16	14	10	15
ARGENTINA AS	TC	FCAT	DEANING													
5000	-12	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	11	11	0	10
10000	-15	-12	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	13	13	0	11
15000	-18	-15	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	16	17	11	16
ARGENTINA AS	TC	FCAT	DEANING													
5000	-12	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	12	12	9	10
10000	-15	-12	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	14	14	10	12
15000	-18	-15	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	19	15	12	16
ARGENTINA AS	TC	FCAT	DEANING													
5000	-12	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	10	10	7	8
10000	-15	-12	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	11	11	0	10
15000	-18	-15	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	16	15	9	14
ARGENTINA AS	TC	FCAT	DEANING													
5000	-12	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	12	11	10	11
10000	-15	-12	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	14	13	11	13
15000	-18	-15	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	18	18	14	17
ARGENTINA AS	TC	FCAT	DEANING													
5000	-12	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	17	15	12	14
10000	-15	-12	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	18	17	14	16
15000	-18	-15	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	24	23	17	22
ARGENTINA AS	TC	FCAT	DEANING													
5000	-12	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	9	8	6	8
10000	-15	-12	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	10	10	7	8
15000	-18	-15	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	13	13	0	11
ARGENTINA AS	TC	FCAT	DEANING													
5000	-12	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	17	16	13	15
10000	-15	-12	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	15	18	14	17
15000	-18	-15	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	26	25	18	24
ARGENTINA AS	TC	FCAT	DEANING													
5000	-12	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	9	8	6	8
10000	-15	-12	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	10	10	7	8
15000	-18	-15	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	14	13	0	12

HEADWINDS--COMPUTED FOR A 10-KNOT AIRSPEED.

00A--CIRCLES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN LEAVES HEADWINDS.

EQUIVALENT MEASURES AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT MEASURES												STANCARE DEVIATION				
	DIRECT												RETURN				
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
ARGENTIA AS																	
5000	-10	-9	-8	-8	-5	-14	-16						0	6	7	7	1 0
10000	-15	-17	-10	-12	-14	-21	-23						14	14	9	10	5 3
15000	-34	-25	-13	-23	-11	-34	-37						23	16	11	16	8 6
ARGENTIA AS																	
5000	-13	-10	-9	-8	-10	-17	-16						11	6	7	8	2 0
10000	-24	-19	-14	-15	-17	-25	-26						20	16	11	12	7 5
15000	-42	-25	-16	-25	-25	-41	-44						34	22	15	24	12 10
ARGENTIA AS																	
5000	-14	-10	-8	-7	-10	-16	-17						11	6	7	8	2 0
10000	-23	-19	-14	-14	-17	-25	-27						15	16	10	12	6 5
15000	-41	-28	-17	-27	-27	-35	-42						32	21	14	22	11 9
ARGENTIA AS																	
5000	-5	-4	-4	-4	-5	-2	-4						-11	-5	-5	-8	-16
10000	15	0	7	5	5	5	-1						-18	-10	-3	-12	-21
15000	25	14	10	15	15	15	3						-30	-20	-14	-22	-34
ARGENTIA AS																	
5000	-10	-9	-7	-6	-8	-14	-15						8	6	7	5	6 1
10000	-18	-17	-5	-11	-14	-21	-23						14	14	8	9	10 4
15000	-32	-25	-13	-23	-23	-33	-36						23	16	11	18	8 6
ARGENTIA AS																	
5000	-6	-5	-8	-6	-8	-15	-17						6	7	8	5	6 0
10000	-16	-16	-5	-11	-13	-22	-24						10	12	8	8	9 1
15000	-26	-23	-13	-23	-23	-33	-36						14	14	9	13	12 1
ARGENTIA AS																	
5000	-10	-9	-8	-8	-10	-16	-17						-13	-8	-10	-12	-19
10000	-18	-16	-5	-11	-13	-22	-24						-20	-12	-14	-15	-25
15000	-26	-23	-13	-23	-23	-33	-36						-31	-20	-21	-28	-37
ARGENTIA AS																	
5000	-14	-10	-8	-7	-10	-16	-17						13	7	12	12	11 2
10000	-23	-19	-14	-14	-17	-25	-27						23	12	16	20	17 7
15000	-40	-25	-16	-25	-25	-41	-44						35	20	25	30	27 13
ARGENTIA AS																	
5000	-14	-10	-8	-7	-10	-16	-17						12	5	11	10	10 3
10000	-23	-19	-14	-14	-17	-25	-27						29	16	14	17	17 8
15000	-44	-25	-16	-25	-25	-41	-44						38	24	21	29	27 15

MEASUREMENTS--COMPUTED FOR A 120-KT AIRSPEED.
00A--LINES ARE EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN INDICATES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES												STANDARD DEVIATION					
	DIRECT						RETURN						JAN	APR	JUL	CCT		
	JAN	APR	JUL	OCT	000	000	JAN	APR	JUL	OCT	000	000						
ARGENTIA AS	TC	NARSANSLER					-7	-4	-5	-6	-6	-14	-17	13	13	11	083 N.MI.	
5000	4	3	4	4	4	4	-13	-7	-7	-8	-9	-19	-21	16	15	12	13	
10000	5	5	5	5	5	5	-25	-15	-11	-17	-17	-31	-34	21	21	16	14	
15000	15	5	6	6	6	6										20	20	
ARGENTIA AS	TC	NEM CUPEBLANC					12	6	11	10	10	2	1	13	12	9	1073 N.MI.	
5000	-14	-10	-11	-11	-11	-11	24	16	14	18	17	9	7	20	14	10	10	
10000	-27	-18	-15	-15	-15	-15	30	23	22	29	27	15	12		15	12	12	
15000	-45	-25	-24	-24	-24	-24										18	18	
ARGENTIA AS	TC	NEM CHLEVAS					12	6	6	7	8	3	1	9	5	5	1958 N.MI.	
5000	-13	-5	-8	-8	-8	-8	22	16	10	12	14	7	6	11	10	6	8	
10000	-25	-16	-11	-11	-11	-11	36	22	13	23	22	12	10	15	14	9	9	
15000	-43	-29	-16	-16	-16	-16										14	14	
ARGENTIA AS	TC	PATRICK APE					10	6	6	6	8	1	0	10	10	7	1408 N.MI.	
5000	-11	-5	-8	-8	-8	-8	17	16	10	10	12	6	4	12	11	7	9	
10000	-21	-16	-10	-10	-10	-10	20	20	13	20	15	10	8	15	15	9	10	
15000	-38	-27	-15	-15	-15	-15										14	14	
ARGENTIA AS	TC	PERET AL PRINCE					4	6	6	3	4	0	-1	-1	9	8	6	1945 N.MI.
5000	-6	-8	-6	-6	-6	-6	4	5	5	6	6	0	-1	10	5	7	7	
10000	-5	-12	-6	-6	-6	-6	6	5	6	10	7	0	-1	13	12	8	8	
15000	-12	-17	-8	-8	-8	-8										11	11	
ARGENTIA AS	TC	PFEISTER					-19	-5	-10	-14	-13	-21	-23	-23	12	11	9	1869 N.MI.
5000	16	8	10	12	11	11	-25	-14	-16	-19	-19	-27	-29	14	12	10	12	
10000	22	11	14	17	15	15	-38	-23	-22	-35	-28	-40	-43	19	17	13	16	
15000	30	18	15	24	22	22												
ARGENTIA AS	TC	RAMEY APE					3	6	6	3	4	0	-1	-1	9	8	6	1846 N.MI.
5000	-5	-8	-7	-6	-6	-6	3	6	5	5	5	0	-2	11	10	7	7	
10000	-2	-14	-6	-6	-6	-6	2	7	5	7	5	-2	-4	14	13	8	11	
15000	-24	-14	-7	-12	-12	-12												
ARGENTIA AS	TC	SANTIC LCPINGC					4	6	6	3	4	0	-1	-1	9	8	6	1899 N.MI.
5000	-5	-8	-6	-6	-6	-6	4	5	5	5	5	0	-2	10	10	7	7	
10000	-5	-11	-6	-7	-5	-5	4	5	6	8	6	0	-2	13	13	8	11	
15000	-10	-16	-8	-13	-13	-13												
ARGENTIA AS	TC	SPAN APE					11	6	9	8	8	2	1	1	11	10	8	1436 N.MI.
5000	-13	-16	-5	-5	-11	-17	22	17	12	14	15	8	6	13	13	8	9	
10000	-26	-15	-13	-16	-16	-23	36	23	17	25	24	13	11	17	17	10	11	
15000	-44	-25	-15	-20	-25	-40											16	

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

000--LINES AREAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN LEAVES HEADINGS.

YES

ONECIPHERALS--COMPUTER FOR A 10-RT B10SPEC.
 00A--LINES ANALOG EQUIVALENT PEACIPHERALS FOR INDICATED PER CENT RELIABILITIES.
 PIALS SICA LINES PEACIPHERALS.

EQUIVALENT MEASUREMENTS: AIR STANDARD DEVIATION IN HOURS FOR GREAT CIRCLE AIR ROUTES

REPORT IN FEET	JAN 1950										RETURN										STANDARD DEVIATION				
	JAN					FEB					MAR					APR					JAN				
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	NOV	DEC	JAN	APR	MAY	JUN	JUL
ASCENSION ISLAND																									
5000	7	6	3	3	1	1	1	1	1	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	5	3	3	4	7
10000	2	2	1	1	1	1	1	1	1	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	7	5	5	6	6
15000	3	3	0	0	0	0	0	0	0	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	9	7	7	9	8
ASCENSION ISLAND																									
5000	2	3	3	3	1	1	1	1	1	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	6	4	4	5	6
10000	3	3	2	2	1	1	1	1	1	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	5	5	5	6	7
15000	3	3	2	2	1	1	1	1	1	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	8	8	8	8	7
ATREAS																									
5000	7	7	0	0	0	0	0	0	0	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	13	11	11	10	10
10000	11	11	0	0	0	0	0	0	0	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	14	13	13	10	13
15000	14	14	0	0	0	0	0	0	0	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	19	17	17	14	16
ATREAS																									
5000	7	7	0	0	0	0	0	0	0	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	10	8	8	6	7
10000	11	11	0	0	0	0	0	0	0	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	10	10	10	8	10
15000	14	14	0	0	0	0	0	0	0	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	16	14	14	11	12
ATREAS																									
5000	7	7	0	0	0	0	0	0	0	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	12	10	10	9	9
10000	11	11	0	0	0	0	0	0	0	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	13	12	12	10	12
15000	14	14	0	0	0	0	0	0	0	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	18	16	16	13	15
ATREAS																									
5000	7	7	0	0	0	0	0	0	0	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	11	10	10	8	9
10000	11	11	0	0	0	0	0	0	0	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	12	12	12	9	11
15000	14	14	0	0	0	0	0	0	0	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	17	15	15	11	14
ATREAS																									
5000	7	7	0	0	0	0	0	0	0	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	15	12	12	10	11
10000	11	11	0	0	0	0	0	0	0	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	15	14	14	11	14
15000	14	14	0	0	0	0	0	0	0	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	21	18	18	14	16
ATREAS																									
5000	7	7	0	0	0	0	0	0	0	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	11	9	9	7	8
10000	11	11	0	0	0	0	0	0	0	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	12	12	12	9	11
15000	14	14	0	0	0	0	0	0	0	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	19	16	16	12	14
ATREAS																									
5000	7	7	0	0	0	0	0	0	0	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	12	10	10	8	9
10000	11	11	0	0	0	0	0	0	0	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	13	12	12	9	11
15000	14	14	0	0	0	0	0	0	0	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	17	15	15	12	14

OPERATIONALS--COMPUTED FOR A 14-000 HOURS PER HOUR.
 000--GIVES ANNUAL EQUIVALENT PEAKING FOR INDICATED PER CENT LIABILITIES.
 PLUS SIGN GIVES MEASUREMENTS.

EQUIVALENT HEADLINES ARE STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E A S T A S I A N T H E A D I N G S														STANDARD DEVIATION			
	DIRECT							RETURN										
	-AA	APR	-LL	CCT	0055C	075	005	JAN	APR	JUL	OCT	00450	075	005		JAN	APR	JUL
ATREAS																		
5000	-6	-6	-9	-6	-6	-6	-6	7	5	9	6	6	0	0	-1	12	10	10
10000	-12	-12	-12	-9	-11	-15	-10	11	5	11	7	9	1	1	0	13	12	12
15000	-15	-15	-15	-10	-11	-20	-31	15	11	17	13	14	3	1		16	16	15
ATREAS																		
5000	6	7	0	5	6	1	0	-7	-7	-6	-5	-7	-12	-13	0	7	6	6
10000	14	14	10	0	11	5	4	-10	-15	-10	-8	-13	-19	-20	9	9	7	0
15000	25	25	14	12	11	10	0	-29	-27	-15	-15	-21	-30	-33	14	12	9	10
ATREAS																		
5000	0	0	3	4	4	-1	-1	-6	-6	-4	-4	-5	-12	-13	12	9	7	9
10000	15	13	11	10	12	4	2	-16	-14	-11	-10	-13	-21	-23	12	12	9	11
15000	24	22	17	17	15	5	0	-25	-24	-18	-19	-22	-32	-35	16	16	12	14
ATREAS																		
5000	-2	-0	-9	-6	-6	-15	-10	7	5	9	6	6	0	0	-1	12	10	9
10000	-11	-10	-11	-8	-11	-16	-20	9	6	13	6	0	0	0	-1	13	12	10
15000	-15	-13	-17	-15	-13	-27	-30	14	5	14	11	12	1	1	16	16	13	16
ATREAS																		
5000	4	2	-9	2	6	-7	-9	-5	-2	3	-2	-1	-5	-12	14	11	9	11
10000	10	0	3	0	4	-2	-4	-12	-10	-5	-7	-9	-18	-21	15	14	11	14
15000	10	12	5	10	10	-1	-4	-16	-17	-12	-13	-15	-27	-30	21	18	14	17
ATREAS																		
5000	7	5	3	4	3	-4	-6	-8	-5	3	-4	-4	-12	-14	14	11	9	11
10000	14	13	5	5	11	1	0	-15	-14	-10	-10	-13	-22	-24	15	15	11	14
15000	20	21	10	16	16	6	3	-24	-24	-10	-10	-21	-34	-37	21	19	15	17
ATREAS																		
5000	4	1	1	2	1	-2	-3	-3	-2	-1	-2	-2	-7	-8	7	6	5	6
10000	-6	-7	0	2	-1	-6	-5	5	6	-7	-3	3	-7	-8	0	7	6	7
15000	-15	-14	1	-7	-5	-17	-15	9	5	-3	5	4	-2	-4	12	6	7	0
ATREAS																		
5000	4	7	5	4	5	1	0	-8	-7	-5	-4	-8	-11	-12	7	7	6	6
10000	4	5	0	2	4	0	-2	-5	-6	-6	-2	-5	-10	-12	0	0	7	7
15000	4	6	0	0	3	-3	-5	-9	-11	-9	-2	-8	-15	-17	13	11	8	9
ATREAS																		
5000	-3	-9	-9	-9	-5	-11	-12	0	4	3	4	4	-1	-2	9	8	7	0
10000	-12	-12	-12	-10	-12	-15	-20	12	11	12	10	11	4	3	11	10	8	10
15000	-15	-15	-22	-17	-16	-24	-30	16	17	21	16	17	7	7	14	13	9	11

ONEALBINS--COMPUTED FOR A 120-MT AIRSPEED.

00A--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLEASE SEE CHARTS HEADWINDS.

EQUIVALENT MEASUREMENTS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT MEASUREMENTS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES																								STANDARD DEVIATION
	DIRECT												RETURN												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
ATLANS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	-6	-4	1	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	
10000	-12	-13	-7	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	
15000	-24	-24	-17	-18	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	
ATLANS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
10000	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
15000	10	13	11	8	5	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
ATLANS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	-5	-6	-5	-7	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	
10000	-12	-9	-11	-9	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
15000	-20	-13	-17	-16	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	
ATLANS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	4	2	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
10000	4	2	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
15000	6	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
ATLANS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	-5	-6	-5	-7	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	
10000	-14	-13	-12	-12	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	
15000	-24	-21	-23	-17	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	
ATLANS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	1	6	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
10000	-6	-7	5	0	-2	-5	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
15000	-15	-12	0	-5	-12	-20	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	
ATLANS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	7	7	5	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
10000	14	13	13	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
15000	23	24	15	17	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
ATLANS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	-6	-5	-1	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	
10000	-14	-13	-5	-10	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	
15000	-24	-23	-20	-17	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	
ATLANS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	-6	-5	-1	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	
10000	-14	-13	-5	-10	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	
15000	-24	-23	-20	-17	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	

MEASUREMENTS--COMPUTED FOR A 120-KT AIRSPEED.

**--LEASTS SQUARES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 PILES SIGN LEASTS HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADWINDS												STANDARD DEVIATION					
	DIRECT						RETURN											
	JAN	APR	JUL	OCT	MAR	AUG	JAN	APR	JUL	OCT	MAR	AUG						
ATLANS																		
5000	-5	-6	-9	-7	-15	-16	8	5	8	6	6	C	-1		1550 N.MI.	11	9	
10000	-12	-9	-10	-5	-11	-20	10	7	9	8	8	1	0		972 N.MI.	12	8	
18000	-21	-13	-16	-16	-17	-30	16	5	13	12	12	2	0		568 N.MI.	17	15	
ATLANS																		
5000	-8	-6	-9	-6	-15	-10	6	5	9	6	6	0	-2		1306 N.MI.	13	10	
10000	-11	-10	-11	-8	-11	-20	9	8	10	6	8	0	-1		1336 N.MI.	13	9	
18000	-16	-13	-17	-14	-16	-25	14	5	14	11	12	1	-1		655 N.MI.	18	16	
ATLANS																		
5000	-5	-6	-6	-6	-7	-14	8	5	8	6	6	-1	-3		1279 N.MI.	14	11	
10000	-13	-13	-13	-9	-13	-23	12	12	12	8	11	2	0		1907 N.MI.	14	10	
18000	-21	-20	-22	-17	-21	-34	18	17	21	15	17	6	4		646 N.MI.	20	17	
ATLANS																		
5000	-3	-4	-6	-3	-5	-13	1	4	5	2	3	-3	-5			11	10	
10000	-4	-5	-4	-3	-5	-14	2	3	5	1	2	-5	-7			12	9	
18000	-12	-7	-6	-7	-8	-22	6	2	1	2	2	-7	-10			17	16	
ATLANS																		
5000	5	6	5	4	5	-1	-6	-6	-5	-4	-6	-11	-12			9	8	
10000	15	14	10	10	11	5	-16	-14	-10	-11	-13	-20	-21			10	10	
18000	25	23	16	18	20	11	-27	-26	-17	-19	-22	-31	-34			14	13	
ATLANS																		
5000	7	7	7	4	6	-1	-7	-6	-8	-4	-7	-13	-14			11	9	
10000	13	13	12	9	11	4	-14	-14	-12	-10	-13	-20	-22			12	12	
18000	22	23	17	15	18	6	-27	-26	-18	-17	-22	-33	-36			19	16	
ATLANS																		
5000	-7	-8	-4	-4	-5	-13	6	4	4	4	4	-1	-2			10	7	
10000	-14	-12	-13	-10	-13	-21	12	11	12	9	11	4	2			11	8	
18000	-15	-19	-22	-18	-20	-31	16	17	22	16	18	9	6			16	14	
ATLANS																		
5000	C	-2	-3	-1	-2	-9	0	2	2	0	0	-4	-6			9	7	
10000	-3	-4	-2	-1	-3	-11	0	2	1	0	0	-6	-7			11	8	
18000	-6	-7	-2	-3	-5	-17	1	1	-1	-1	0	-9	-11			15	14	
ATLANS																		
5000	-8	-5	0	-4	-4	-14	7	4	0	4	3	-3	-5			12	11	
10000	-11	-14	-9	-10	-12	-23	14	12	8	9	10	2	0			13	10	
18000	-23	-23	-20	-18	-21	-34	19	21	19	16	18	8	6			19	16	

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DEFACTS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLANS SIGN LENGTHS HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*												STANDARD DEVIATION					
	DIRECT						RETURN											
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	UCT	**ASC	A75	A85	JAN	APR	JUL	UCT
ATHENS																		
5000	5	6	5	4	5	1	0	-6	-6	-6	-4	-6	-10	-11	7	6	5	6
10000	14	13	8	5	10	5	4	-15	-14	-9	-9	-12	-17	-19	8	8	6	7
18000	27	25	15	16	15	12	11	-31	-28	-16	-16	-23	-32	-34	12	11	8	9
ATHENS																		
5000	-6	-5	-5	-5	-6	-13	-14	7	4	4	4	4	-1	-3	11	10	8	9
10000	-14	-12	-13	-10	-13	-20	-22	12	11	13	9	11	3	2	12	12	9	11
18000	-20	-15	-22	-16	-20	-30	-32	16	16	21	16	17	8	5	17	14	11	13
ATKINSON																		
5000	11	10	13	11	11	6	7	-11	-10	-12	-10	-11	-14	-15	5	5	4	4
10000	5	9	15	5	10	6	5	-5	-8	-15	-5	-10	-15	-16	5	5	6	5
18000	3	4	13	7	7	1	0	-3	-4	-12	-7	-7	-13	-14	8	8	6	6
ATKINSON																		
5000	-11	-10	-14	-12	-12	-17	-18	11	5	14	12	11	7	6	7	6	5	6
10000	-7	-5	-9	-7	-8	-13	-14	7	5	8	7	7	3	2	6	6	7	5
18000	-3	-5	-7	-8	-7	-12	-13	3	5	7	8	6	0	0	9	8	8	6
ATKINSON																		
5000	7	10	9	8	8	5	4	-7	-10	-8	-8	-9	-12	-12	5	4	4	4
10000	10	10	17	11	11	8	7	-10	-9	-17	-10	-12	-16	-17	4	5	6	5
18000	6	6	13	5	8	3	2	-6	-5	-13	-5	-9	-14	-15	8	8	7	6
ATKINSON																		
5000	0	2	8	4	3	-1	-3	-1	-3	-9	-5	-5	-10	-11	7	7	7	6
10000	-1	3	3	3	1	-3	-4	0	-3	-5	-3	-3	-8	-9	7	7	7	7
18000	-2	-1	2	-1	-1	-7	-6	2	0	-3	1	0	-6	-7	10	10	8	7
ATKINSON																		
5000	3	4	8	5	5	0	0	-3	-4	-8	-5	-6	-10	-11	6	6	5	6
10000	-3	1	5	3	1	-3	-4	1	-2	-6	-3	-3	-8	-9	7	7	5	6
18000	-12	-10	3	0	-4	-12	-14	8	7	-3	-1	1	-4	-5	5	5	6	7
ATKINSON																		
5000	7	8	13	10	5	5	5	-8	-6	-13	-9	-10	-14	-15	5	5	4	5
10000	5	6	13	7	7	3	2	-5	-6	-13	-7	-8	-13	-14	6	6	6	5
18000	-2	-1	5	4	2	-3	-5	1	1	-8	-4	-3	-8	-10	8	8	6	6
ATKINSON																		
5000	10	9	10	7	5	6	5	-10	-9	-9	-7	-9	-12	-12	4	4	3	3
10000	6	8	15	8	5	6	5	-8	-7	-15	-7	-9	-13	-14	4	4	4	4
18000	3	5	12	7	6	1	0	-3	-3	-12	-6	-7	-11	-12	7	6	5	5

*HEADWINDS--COMPUTED FOR A 100-KT AIRSPEED.

**A--EQUIVALENT ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN INDICATES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS																		STANDARD DEVIATION
	DIRECT						RETURN												
	JAN	APR	JUL	GCT	000SEC	A75	A85	JAN	APR	JUL	GCT	000SEC	A75	A85	JAN	APR	JUL	GCT	
ATKINSON	TC	7	12	9	5	5	4	-8	-7	-12	-9	-10	-13	-14	5	5	4	4	
5000	5	5	12	7	7	3	2	-5	-5	-12	-6	-7	-12	-13	6	5	5	5	
10000	-3	-3	8	4	1	-4	-6	2	3	-8	-4	-2	-8	-9	8	7	5	6	
ATKINSON	TC	7	12	8	6	5	4	-7	-7	-11	-8	-9	-12	-13	5	5	4	4	
5000	3	4	11	6	6	1	0	-3	-4	-11	-6	-7	-11	-12	6	6	5	5	
10000	-5	-5	7	3	0	-6	-8	4	4	-7	-3	-1	-7	-8	8	8	5	6	
ATKINSON	TC	4	5	6	6	2	1	-5	-5	-9	-6	-7	-10	-11	6	5	4	5	
5000	-1	1	7	7	2	-4	-3	0	-2	-7	-4	-4	-8	-9	6	6	5	6	
10000	-11	-10	4	0	-3	-12	-13	8	7	-5	-1	0	-5	-6	9	8	5	7	
ATKINSON	TC	5	10	6	6	2	1	-6	-5	-10	-6	-7	-11	-12	6	5	4	5	
5000	0	1	6	4	3	-1	-2	0	-2	-8	-4	-4	-8	-9	6	6	5	5	
10000	-5	-9	5	0	-2	-10	-12	7	7	-5	-1	0	-5	-6	9	8	5	6	
ATKINSON	TC	7	12	5	6	5	4	-7	-7	-12	-8	-9	-13	-14	5	5	4	5	
5000	4	4	12	6	6	4	1	-4	-4	-11	-6	-7	-11	-12	6	5	5	5	
10000	-4	-5	8	3	0	-6	-7	3	4	-7	-3	-2	-7	-8	8	8	5	6	
ATKINSON	TC	5	9	5	5	1	0	-3	-5	-9	-5	-6	-10	-11	7	6	5	6	
5000	6	3	5	3	2	-4	-3	0	-4	-6	-3	-4	-9	-10	8	7	6	6	
10000	-8	-5	5	3	-2	-8	-10	6	3	-3	-1	0	-5	-6	10	9	6	7	
ATKINSON	TC	9	13	10	6	6	5	-9	-8	-13	-10	-11	-14	-15	5	5	4	4	
5000	1	1	14	8	6	4	3	-7	-6	-14	-7	-9	-13	-14	6	5	5	5	
10000	0	0	10	5	3	-2	-3	0	0	-10	-5	-4	-10	-11	8	8	6	6	
ATKINSON	TC	1	2	1	1	-1	-1	-1	-1	-2	-1	-2	-4	-5	4	4	3	4	
5000	2	2	7	6	4	0	0	-3	-3	-7	-6	-5	-5	-10	5	5	6	5	
10000	2	3	1	4	2	-1	-2	-3	-3	-1	-4	-3	-8	-9	7	6	7	5	
ATKINSON	TC	5	3	3	4	1	1	-4	-4	-3	-4	-4	-7	-7	4	3	4	4	
5000	6	5	10	8	7	3	3	-5	-5	-10	-8	-7	-11	-12	4	4	6	4	
10000	7	4	4	4	3	1	0	-7	-4	-4	-8	-6	-11	-12	7	6	7	5	

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

000--CENTS ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN ENOTES HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADWINDS												STANDARD DEVIATION				
	DIRECT						RETURN										
	JAN	APR	JUL	OCT	MAR	APR	JAN	APR	JUL	OCT	MAR	APR	JAN	APR	JUL	OCT	
ATKINSON	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1691 N.MI.
5000	11	9	7	7	8	5	-11	-5	-8	-6	-9	-12	-12	-12	-12	-12	4
10000	5	8	8	8	5	5	-9	-8	-15	-8	-10	-14	-15	-15	-15	-15	4
16000	4	4	13	7	7	2	-4	-4	-12	-7	-7	-12	-13	-13	-13	-13	7
ATKINSON	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1035 N.MI.
5000	8	10	9	9	11	5	-8	-10	-9	-8	-9	-12	-13	-13	-13	-13	5
10000	10	9	17	10	11	7	-10	-5	-16	-10	-11	-15	-16	-16	-16	-16	4
16000	6	5	13	9	8	3	-6	-5	-13	-8	-9	-14	-15	-15	-15	-15	8
ATKINSON	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	193 N.MI.
5000	-13	-14	-13	-14	-14	-16	12	12	14	14	13	8	7	7	7	7	7
10000	-6	-10	-14	-10	-11	-17	9	10	14	11	10	6	4	7	8	6	7
16000	-3	-4	-10	-7	-7	-14	3	5	10	8	6	0	-1	10	10	9	7
ATKINSON	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1820 N.MI.
5000	6	11	7	7	4	3	-6	-6	-10	-7	-8	-11	-12	-12	-12	-12	5
10000	1	2	5	5	4	0	-1	-3	-9	-5	-5	-9	-10	-10	-10	-10	6
16000	-7	-7	6	1	-1	-10	6	6	-6	-2	0	-6	-7	-7	-7	-7	8
ATKINSON	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1098 N.MI.
5000	1	13	10	10	5	4	-8	-6	-13	-9	-10	-14	-15	-15	-15	-15	5
10000	5	6	13	7	7	3	-5	-6	-13	-7	-8	-13	-14	-14	-14	-14	6
16000	-2	-1	5	4	2	-3	1	0	-9	-4	-4	-9	-10	-10	-10	-10	9
ATKINSON	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	886 N.MI.
5000	5	7	13	6	6	4	-6	-7	-13	-8	-9	-13	-14	-14	-14	-14	6
10000	4	5	11	6	6	1	-4	-5	-11	-6	-7	-12	-13	-13	-13	-13	7
16000	-2	-2	7	2	1	-5	2	1	-7	-2	-2	-8	-9	-9	-9	-9	9
ATKINSON	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1649 N.MI.
5000	-13	-12	-13	-14	-14	-16	13	14	16	14	13	10	9	9	9	9	5
10000	-6	-5	-5	-6	-5	-12	5	10	9	9	9	6	5	5	5	5	5
16000	-6	-5	-7	-5	-7	-13	5	5	7	9	6	2	1	1	1	1	7
ATKINSON	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1967 N.MI.
5000	6	6	10	10	6	4	-2	0	0	-1	-1	-4	-5	-5	-5	-5	5
10000	6	6	10	10	6	4	0	-1	0	0	-1	-4	-5	-5	-5	-5	5
16000	-2	-1	6	-1	-2	-7	1	0	-1	0	0	-4	-5	-5	-5	-5	7
ATKINSON	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1548 N.MI.
5000	10	5	6	7	6	5	-10	-5	-8	-7	-9	-11	-12	-12	-12	-12	4
10000	5	5	16	9	10	7	-9	-8	-16	-8	-10	-14	-15	-15	-15	-15	4
16000	5	4	13	8	7	2	-5	-4	-13	-7	-8	-13	-14	-14	-14	-14	7

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--LARGEST ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANCAFC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS*														STANCAFC DEVIATION			
	DIRECT							RETURN							JAN APR JUL OCT			
	JAN	APR	JUL	GCT	***ASC	A75	A85	JAN	APR	JUL	OCT	***ASO	A75	A85				
ATKINSLA	IC	9	9	7	2	6	5	-10	-5	-9	-6	-9	-12	-12	4	4	1871 N.M.I.	
5000	5	8	15	8	5	6	5	-8	-7	-15	-8	-10	-13	-14	4	4	3	
10000	3	3	12	7	6	1	0	-4	-3	-12	-6	-7	-11	-13	7	6	4	
16000																	5	
ATKINSLA	IC	5	4	2	4	1	0	-5	-5	-4	-2	-5	-7	-8	4	4	1466 N.M.I.	
5000	3	3	6	5	4	0	0	-3	-3	-7	-5	-5	-9	-10	5	5	4	
10000	1	2	0	2	1	-3	-4	-1	-2	0	-2	-2	-6	-7	7	7	5	
16000																	5	
ATKINSLA	IC	8	13	5	5	5	3	-7	-8	-13	-9	-10	-14	-15	6	6	990 N.M.I.	
5000	5	6	12	7	7	3	1	-5	-5	-12	-7	-8	-12	-13	6	6	5	
10000	-2	-1	6	3	2	-4	-5	2	1	-8	-3	-3	-8	-10	9	9	6	
16000																	6	
ATKINSLA	IC	7	4	7	5	3	2	-5	-6	-4	-6	-6	-8	-9	4	3	1531 N.M.I.	
5000	10	10	14	12	11	6	7	-9	-9	-14	-12	-11	-15	-15	4	4	3	
10000	5	5	8	12	8	4	3	-10	-4	-8	-11	-9	-13	-14	7	6	5	
16000																	5	
ATKINSLA	IC	5	10	8	5	6	6	-10	-5	-9	-7	-9	-12	-12	4	4	1769 N.M.I.	
5000	5	8	15	8	5	6	5	-8	-7	-15	-8	-10	-13	-14	4	4	3	
10000	3	3	12	7	6	1	0	-3	-3	-12	-6	-7	-11	-12	7	6	4	
16000																	5	
ATKINSLA	IC	5	14	11	11	7	6	-10	-5	-13	-11	-11	-15	-16	5	6	720 N.M.I.	
5000	7	8	14	5	5	5	4	-7	-6	-14	-8	-10	-14	-15	6	6	5	
10000	2	2	11	6	5	0	-2	-1	-2	-11	-5	-6	-11	-13	9	9	5	
16000																	6	
AVIAC AE	IC	5	9	5	6	6	0	-6	-5	-9	-5	-7	-12	-13	9	8	1644 N.M.I.	
5000	12	10	10	7	5	3	1	-13	-11	-10	-8	-11	-17	-19	10	10	7	
10000	17	15	17	14	15	7	5	-21	-16	-18	-16	-19	-27	-29	14	13	8	
16000																	9	
AVIAC AE	IC	-5	-6	-7	-8	-16	-16	8	5	8	6	6	-1	-4	15	13	318 N.M.I.	
5000	-13	-8	-10	-5	-10	-21	-23	11	7	9	8	8	-1	-3	17	16	11	
10000	-21	-12	-14	-16	-16	-30	-33	16	6	11	12	11	-2	-5	24	21	12	
16000																	15	
AVIAC AE	IC	-3	-6	-4	-5	-14	-16	4	2	6	3	3	-4	-6	14	12	565 N.M.I.	
5000	-11	-8	-12	-10	-11	-20	-22	5	7	12	9	9	0	-1	15	14	11	
10000	-10	-12	-19	-19	-17	-25	-32	11	5	18	16	14	1	-1	21	19	13	
16000																	14	

HEADINGS--CALCULATED FOR A 120-KT AIRSPEED.

***--LARGEST ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADINGS										STANDARD DEVIATION								
	DIRECT					RETURN													
	JAN	APR	JUL	OCT	0045C	075	AES	JAN	APR	JUL	OCT	0045C	075	AES	JAN	APR	JUL	OCT	
AVIARC AE	TC	5	10	5	6	-1	-3	-7	-6	-10	-5	-8	-16	-18	414 N.MI.	15	12	11	11
5000	6	5	10	5	6	-1	-4	-11	-9	-10	-7	-10	-14	-22	15	15	12	15	
10000	12	7	12	5	10	-2	-5	-10	-10	-15	-12	-14	-26	-29	21	15	15	18	
AVIARC AE	TC	6	9	5	6	0	0	-7	-6	-9	-5	-7	-13	-14	1309 N.MI.	10	8	7	8
5000	6	9	11	7	5	2	0	-11	-11	-11	-8	-11	-18	-19	11	11	8	10	
10000	15	14	16	11	14	5	2	-20	-15	-17	-14	-18	-27	-29	16	14	11	12	
AVIARC AE	TC	-4	-8	-8	-7	-15	-18	6	4	8	5	5	-2	-4	449 N.MI.	15	12	11	12
5000	-6	-4	-12	-11	-12	-21	-24	11	7	12	10	10	0	-2	16	15	12	14	
10000	-13	-13	-19	-20	-18	-31	-34	14	10	18	17	15	2	-1	22	20	15	19	
AVIARC AE	TC	-5	-9	-7	-8	-16	-19	7	5	9	6	6	-1	-4	325 N.MI.	15	13	11	12
5000	-6	-5	-12	-11	-12	-22	-24	11	7	11	9	9	0	-2	17	15	12	15	
10000	-20	-13	-18	-19	-18	-31	-35	16	10	16	16	14	1	-2	23	21	16	20	
AVIARC AE	TC	5	8	5	6	0	-1	-6	-5	-8	-5	-7	-13	-14	1320 N.MI.	11	9	8	8
5000	5	8	10	8	5	0	-1	-13	-10	-10	-9	-11	-18	-20	11	11	9	10	
10000	12	13	17	14	14	5	3	-19	-10	-10	-9	-11	-27	-30	16	14	11	14	
AVIARC AE	TC	-5	-8	-6	-7	-16	-18	7	5	7	6	6	-2	-4	304 N.MI.	16	13	11	12
5000	-5	-8	-10	-5	-7	-16	-18	10	6	8	7	7	-2	-4	17	16	12	15	
10000	-20	-11	-15	-16	-15	-25	-23	10	6	8	7	7	-2	-6	24	21	16	21	
AVIARC AE	TC	5	8	5	6	0	-2	-7	-5	-8	-6	-7	-14	-16	773 N.MI.	13	10	10	10
5000	6	5	11	6	5	1	0	-13	-10	-11	-9	-11	-20	-22	14	13	10	13	
10000	14	11	16	14	14	3	0	-18	-14	-19	-17	-18	-25	-31	19	17	14	16	
AVIARC AE	TC	6	9	6	6	0	-2	-8	-6	-9	-6	-8	-15	-17	801 N.MI.	13	10	9	10
5000	6	9	11	7	5	1	0	-12	-11	-12	-8	-11	-20	-22	13	13	10	13	
10000	15	12	16	13	14	3	0	-19	-15	-20	-16	-18	-29	-32	19	17	13	16	
AVIARC AE	TC	-4	-4	-4	-6	-13	-15	7	3	3	3	3	-3	-4	1560 N.MI.	12	10	8	11
5000	-6	-4	-7	-8	-5	-17	-19	9	6	5	5	6	-1	-3	13	12	9	12	
10000	-12	-8	-7	-8	-5	-17	-19	15	10	7	9	9	0	-3	18	17	13	16	
16000	-22	-15	-10	-15	-16	-27	-30												

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

0045--LARGEST ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADWINDS AND STANCAFE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION						
	DIRECT						RETURN						JAN APR JUL OCT						
	JAN	APR	JUL	OCT	0000	075	AB5	JAN	APR	JUL	OCT	0000					075	AB5	
AVIANC AE	TC	TC	LAJES FIELD																1792 N.MI.
SUCC	-7	-2	-6	-8	-6	-13	-15	6	2	6	4	4	-2	-4	10	9	15		
10000	-12	-8	-11	-14	-11	-18	-19	10	6	10	11	9	2	1	11	10	9		
18000	-17	-13	-17	-15	-17	-26	-28	12	10	16	16	13	4	2	15	14	10	13	
AVIANC AE	TC	TC	LAS PALMAS															1720 N.MI.	
SUCC	-1	-2	-1	-2	-2	-7	-8	1	1	2	0	1	-3	-5	0	0	7		
10000	-5	-8	-5	-7	-6	-14	-15	3	7	8	6	6	0	-1	10	9	9		
18000	-5	-13	-15	-13	-13	-21	-23	4	10	14	10	10	1	0	13	12	9	11	
AVIANC AE	TC	TC	LISECA															1060 N.MI.	
SUCC	-4	-1	-3	-2	-3	-10	-11	2	1	3	2	2	-4	-6	11	10	10		
10000	-5	-8	-11	-10	-10	-16	-20	6	6	10	9	8	0	-1	13	12	9	11	
18000	-12	-12	-19	-16	-16	-26	-28	7	5	17	13	11	1	-1	17	15	12	15	
AVIANC AE	TC	TC	LUCA, MALTA															636 N.MI.	
SUCC	5	4	6	3	5	-2	-4	-6	-5	-8	-3	-6	-13	-15	13	11	9	10	
10000	4	4	7	2	4	-4	-6	-6	-6	-8	-3	-6	-15	-17	14	13	11	13	
18000	7	1	2	1	2	-6	-11	-12	-6	-7	-6	-8	-19	-22	19	17	13	16	
AVIANC AE	TC	TC	LUCA															1620 N.MI.	
SUCC	7	6	8	5	6	1	0	-8	-6	-8	-5	-7	-12	-13	9	7	6	7	
10000	8	9	9	5	7	1	0	-10	-10	-10	-6	-10	-16	-17	10	9	7	9	
18000	13	13	13	8	11	3	2	-19	-16	-15	-11	-16	-24	-26	14	12	9	11	
AVIANC AE	TC	TC	PILCENFALL															595 N.MI.	
SUCC	-10	-5	-8	-8	-8	-16	-19	8	4	8	7	6	-1	-3	15	12	10	12	
10000	-15	-8	-10	-10	-11	-20	-23	11	6	9	9	8	0	-3	16	15	11	14	
18000	-22	-12	-14	-16	-17	-30	-34	17	6	11	13	12	-1	-4	22	20	16	20	
AVIANC AE	TC	TC	MCSCM															1085 N.MI.	
SUCC	5	2	3	6	3	-3	-5	-7	-3	-4	-7	-6	-13	-15	12	11	9	11	
10000	7	3	6	6	6	-2	-4	-9	-5	-7	-10	-8	-17	-19	14	13	10	12	
18000	5	5	12	10	8	-3	-6	-11	-5	-15	-14	-13	-24	-27	18	17	14	17	
AVIANC AE	TC	TC	APPLES															337 N.MI.	
SUCC	4	5	8	4	5	-3	-5	-6	-5	-9	-4	-7	-15	-17	15	12	11	11	
10000	5	4	6	2	4	-5	-7	-8	-6	-7	-4	-7	-17	-19	16	15	12	15	
18000	6	2	5	2	3	-6	-11	-13	-6	-8	-7	-9	-21	-24	22	19	15	10	
AVIANC AE	TC	TC	NICCSIA															1149 N.MI.	
SUCC	6	6	5	5	6	0	-1	-7	-6	-9	-5	-7	-13	-15	11	9	8	0	
10000	11	10	12	7	10	2	0	-12	-11	-12	-8	-11	-19	-20	12	11	9	11	
18000	16	14	18	13	15	5	3	-20	-16	-19	-16	-19	-28	-31	17	15	12	14	

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

000--DEVIATES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

FEIGHT IN FEET	E C L I V I L E A T M L A L I A U S O				STANCAPC DEVIATION	
	DIRECT		RETURN		JAN	APR JUL OCT
	0A	APR JUL OCT 00ASC A75 A65	JAN APR JUL OCT 00ASO A75 A85			

[illegible]

THEATRICALS--COMPUTED FOR A 120-MT AIRSPEED.
 ***--CENOTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT CLARITIES.
 PLUS SIX DEUTES HEADINGS.

EQUIVALENT HEADLINES AND STANARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADLINES														STANARC DEVIATION			
	DIRECT							RETURN							JAN APR JUL OCT			
	JAN	APR	JUL	OCT	00ASO	A75	AB5	JAN	APR	JUL	OCT	00ASO	A75	AB5				
AVIARC AE	TC	TC	1	2	TRCPSC	-5	-7	-1	0	-1	-3	-2	-8	-10	10	9	1411 N.M.I.	
5000	0	0	1	0		0	-9	-1	0	0	-3	-2	-9	-11	12	11	0	
10000	-1	-1	1	0		0	-9	-1	0	-2	-3	-2	-9	-11	18	16	9	
18000	-5	-4	3	0		-1	-15	-2	-1	-7	-7	-5	-16	-18	18	16	13	
AVIARC AE	TC	TC	5	1	TLNIS	-4	-6	-5	-4	-6	-2	-5	-12	-14	13	11	501 N.M.I.	
5000	3	3	5	1		3	-6	-5	-4	-6	-2	-5	-12	-14	13	11	10	
10000	0	0	2	0		0	-10	-3	-2	-4	0	-3	-12	-14	14	14	11	
18000	2	-3	-5	-3		-3	-17	-8	0	1	0	-2	-13	-16	20	17	13	
AVIARC AE	TC	TC	-3	-2	ZKAGCZA	-11	-12	2	0	2	1	1	-6	-8	13	12	613 N.M.I.	
5000	-3	-1	-3	-2		-3	-12	2	0	2	1	1	-6	-8	13	12	10	
10000	-6	-7	-11	-5		-5	-21	6	6	10	7	7	-1	-3	15	14	11	
18000	-12	-12	-18	-16		-15	-30	6	5	16	13	11	0	-3	20	18	14	
AVIARC AE	TC	TC	-9	-6	BITBURG AE	-12	-13	5	5	9	6	6	1	0	9	7	1935 N.M.I.	
5000	-5	-5	-9	-6		-7	-13	5	5	9	6	6	1	0	9	7	6	
10000	-13	-10	-10	-5		-11	-18	11	5	9	7	9	3	1	10	5	7	
18000	-20	-16	-17	-16		-18	-28	16	13	15	13	14	6	4	14	13	10	
AVIARC AE	TC	TC	-7	-5	BTINCISI	-12	-13	6	6	7	5	6	0	0	10	8	1334 N.M.I.	
5000	-6	-6	-7	-5		-7	-13	6	6	7	5	6	0	0	10	8	6	
10000	-15	-14	-11	-5		-13	-21	14	13	11	9	11	5	3	10	10	8	
18000	-25	-24	-20	-16		-22	-33	22	22	19	16	19	11	9	15	13	13	
AVIARC AE	TC	TC	-3	-2	CZIPC	-10	-11	6	6	2	2	3	-1	-2	9	8	608 N.M.I.	
5000	-6	-6	-3	-2		-5	-11	6	6	2	2	3	-1	-2	9	8	6	
10000	-17	-15	-8	-10		-13	-22	16	14	7	10	11	4	3	10	10	9	
18000	-34	-27	-11	-20		-22	-36	28	25	10	19	19	9	7	18	15	15	
AVIARC AE	TC	TC	-9	-6	CFAUMONT	-12	-13	5	5	9	5	6	1	0	9	7	1968 N.M.I.	
5000	-6	-5	-9	-6		-7	-13	5	5	9	5	6	1	0	9	7	6	
10000	-13	-11	-11	-5		-12	-19	12	5	10	8	9	3	2	10	9	7	
18000	-20	-17	-18	-17		-18	-29	16	14	16	14	15	6	4	14	12	10	
AVIARC AE	TC	TC	10	5	OPAFRAN	6	0	-5	-6	-10	-5	-7	-13	-14	8	9	519 N.M.I.	
5000	5	6	10	5		6	0	-5	-6	-10	-5	-7	-13	-14	8	9	8	
10000	8	10	7	5		7	-1	-11	-11	-7	-6	-9	-16	-18	11	11	9	
18000	15	16	8	1		5	-2	-25	-22	-9	-4	-14	-26	-29	17	14	10	
AVIARC AE	TC	TC	-5	-3	CIVANBANIA	-11	-13	2	3	10	4	5	-1	-3	11	9	343 N.M.I.	
5000	-3	-3	-5	-3		-5	-13	2	3	10	4	5	-1	-3	11	9	7	
10000	-10	-8	-6	-5		-8	-17	8	6	5	4	5	-1	-3	12	12	10	
18000	-20	-18	-11	-11		-15	-25	13	12	9	7	9	6	-2	19	17	12	

*HEADLINES--COMPUTED FOR A 120-KT AIRSPEED.

**A--LINES ARE ANNUAL EQUIVALENT HEADLINES FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADLINES.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES												STANDARD DEVIATION		
	DIRECT						RETURN						JAN	APR	JUL OCT
	JAN	APR	JUL	OCT	0000	0000	JAN	APR	JUL	OCT	0000	0000	0000	0000	0000
BAGPEAC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-6	-5	-9	-6	-7	-12	-13	5	5	9	6	6	1	0	0
10000	-13	-10	-10	-9	-11	-17	-18	11	9	9	7	9	3	1	1
18000	-20	-16	-17	-16	-16	-26	-28	15	13	15	13	14	5	3	3
BAGPEAC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-4	-5	-9	-5	-7	-12	-14	4	5	9	5	6	0	-1	-1
10000	-14	-12	-10	-8	-11	-19	-20	13	11	13	7	13	3	1	1
18000	-24	-23	-17	-16	-26	-30	-33	23	19	16	14	17	7	5	5
BAGPEAC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-6	-6	-8	-5	-7	-12	-14	5	6	8	5	6	0	0	0
10000	-15	-14	-11	-10	-13	-20	-22	15	13	11	9	11	4	3	3
18000	-22	-26	-18	-19	-23	-33	-35	24	24	17	17	20	10	8	8
BAGPEAC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	5	8	7	2	5	1	0	-5	-7	-7	-2	-6	-10	-11	-11
10000	12	11	4	6	6	2	1	-14	-12	-4	-6	-9	-15	-17	-17
18000	32	26	7	13	16	6	6	-36	-25	-8	-14	-21	-33	-36	-36
BAGPEAC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	2	2	0	3	1	-2	-3	-2	-3	0	-3	-3	-7	-8	-8
10000	-6	-3	3	-3	-2	-6	-10	5	2	-3	3	1	-4	-5	-5
18000	-16	-10	2	-11	-5	-17	-20	10	5	-3	10	4	-3	-5	-5
BAGPEAC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-6	-6	-3	-4	-6	-11	-12	7	6	3	4	4	0	-1	-1
10000	-16	-16	-11	-11	-14	-20	-21	16	15	11	10	12	7	5	5
18000	-30	-28	-18	-20	-24	-33	-35	27	26	17	19	21	13	11	11
BAGPEAC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-4	-3	0	1	-1	-7	-8	4	3	3	0	1	-4	-5	-5
10000	-13	-10	-2	-7	-6	-15	-17	11	5	1	7	6	0	-1	-1
18000	-25	-20	-4	-16	-16	-27	-29	20	16	3	15	12	3	1	1
BAGPEAC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	1	-4	0	-1	-7	-8	0	-1	4	0	0	-5	-6	-6
10000	-2	0	-1	-2	-2	-5	-10	0	-1	0	0	0	-7	-8	-8
18000	-5	-3	-2	-6	-6	-15	-18	2	0	0	1	0	-8	-10	-10
BAGPEAC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-1	-6	-7	-5	-7	-12	-13	6	6	6	5	5	0	0	0
10000	-15	-13	-11	-9	-14	-19	-20	14	13	11	9	11	5	3	3
18000	-25	-24	-20	-18	-22	-30	-32	21	21	19	16	19	11	9	9

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

***--DIFFERENCES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CERT RELIABILITIES.
PLACES SIGN LENGTHS HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT
BAGHDAD																
5000	-6	-6	-7	-4	-6	-12	-13	6	7	7	5	6	0	10	9	561 N.M.I.
10000	-17	-15	-11	-10	-14	-21	-23	16	15	11	10	13	3	11	11	6
18000	-31	-28	-17	-20	-24	-35	-38	28	26	16	19	21	11	18	16	10 11 12 13
BAGHDAD																
5000	-6	-5	-5	-6	-7	-12	-13	5	5	9	6	6	1	9	7	1066 N.M.I.
10000	-12	-10	-9	-8	-10	-16	-18	11	5	9	7	9	3	10	9	7
18000	-20	-16	-17	-16	-18	-26	-28	15	12	15	13	13	5	14	13	10 12
BAGHDAD																
5000	-7	-6	-7	-5	-7	-12	-13	6	5	7	5	5	0	9	8	1590 N.M.I.
10000	-15	-13	-11	-5	-12	-15	-20	14	12	11	8	10	4	10	10	6
18000	-24	-23	-20	-16	-22	-30	-32	20	20	19	16	18	10	14	13	10 11
BAGHDAD																
5000	-3	-2	-6	-3	-4	-10	-11	2	2	6	3	3	-2	9	8	1005 N.M.I.
10000	-6	-4	-3	-6	-6	-13	-14	5	4	3	5	4	-2	10	10	7
18000	-15	-11	-9	-11	-12	-20	-23	10	6	6	7	7	-1	14	13	10 13
BAGHDAD																
5000	5	7	1	4	4	-1	-3	-5	-6	-1	-3	-4	-10	9	9	363 N.M.I.
10000	14	15	5	10	11	3	1	-17	-15	-5	-10	-12	-20	12	11	8
18000	25	26	15	21	22	11	5	-32	-26	-10	-21	-24	-35	18	16	10 11 12 13
BAGHDAD																
5000	-6	-7	-4	-3	-5	-11	-12	6	7	4	4	5	0	10	9	485 N.M.I.
10000	-17	-16	-5	-11	-14	-21	-23	17	15	9	10	12	5	11	11	6
18000	-32	-28	-14	-20	-23	-34	-37	29	26	13	20	21	10	18	16	11 13
BAGHDAD																
5000	-6	-6	-4	-4	-6	-11	-12	7	6	3	4	4	0	9	7	1680 N.M.I.
10000	-16	-15	-11	-11	-14	-20	-21	15	14	11	10	12	6	9	9	6
18000	-28	-27	-15	-15	-22	-31	-34	25	25	18	18	21	13	14	12	9 10
BAGHDAD																
5000	5	7	5	4	5	0	0	-5	-7	-5	-3	-5	-10	7	8	877 N.M.I.
10000	15	13	5	8	10	2	2	-16	-14	-5	-8	-11	-18	9	5	7
18000	33	25	12	16	20	11	5	-36	-31	-12	-17	-23	-35	15	13	9 10
BAGHDAD																
5000	-11	-10	-12	-10	-11	-14	-15	11	10	13	10	11	6	4	4	1735 N.M.I.
10000	-6	-9	-12	-8	-10	-13	-14	6	5	12	9	9	6	4	4	3
18000	-4	-5	-10	-9	-8	-12	-13	4	5	10	9	7	2	6	6	5

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.
**A--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*												STANDARD DEVIATION			
	DIRECT					RETURN										
	JAN	APR	JUL	OCT	A75	A85	JAN	APR	JUL	OCT	A75	A85	JAN	APR	JUL	OCT
HARRANQUILLA																
5000	-2	TC	-2	-1	-2	-5	-6	2	2	2	2	0	-1	6	5	376 N.M.I.
10000	2	C	-3	-1	-1	-5	-6	-2	1	2	1	-3	-4	5	6	3
18000	1	-2	-2	C	-1	-7	-8	-1	2	1	0	-5	-6	10	9	7
BARRANQUILLA																
5000	-13	TC	-11	-12	-12	-15	-16	13	11	13	11	12	7	5	6	900 N.M.I.
10000	-10	C	-6	-14	-7	-14	-15	10	7	14	7	9	4	6	6	5
18000	-3	-2	-11	-6	-7	-12	-13	3	2	11	7	6	-1	9	9	7
HARRANQUILLA																
5000	C	TC	4	3	1	-2	-3	-1	-4	-3	-2	-3	-7	7	7	1447 N.M.I.
10000	-2	4	3	2	2	-1	-5	0	-3	-4	-3	-3	-8	8	6	6
18000	-7	-5	2	2	2	-1	-10	2	1	-2	-3	-1	-7	11	10	9
BARRANQUILLA																
5000	5	TC	6	8	5	4	1	-2	-6	-8	-5	-7	-10	6	6	1620 N.M.I.
10000	1	2	10	4	4	C	-1	-2	-2	-10	-4	-5	-11	6	5	5
18000	-6	-8	7	0	0	-1	-10	4	6	-6	-1	0	-7	9	8	7
BARRANQUILLA																
5000	C	TC	3	2	1	-3	-4	-1	-3	-2	-1	-2	-7	7	7	1696 N.M.I.
10000	-2	2	2	2	2	C	-4	0	-4	-3	-3	-3	-8	8	6	7
18000	-6	-5	1	2	2	-1	-10	0	0	-2	-5	-2	-9	11	11	9
BARRANQUILLA																
5000	2	TC	5	3	3	4	C	-3	-5	-5	-3	-5	-9	7	6	1346 N.M.I.
10000	C	1	7	3	3	-1	-3	-1	-2	-7	-3	-4	-8	7	7	6
18000	-6	-9	3	0	0	-3	-12	3	6	-3	-1	0	-6	10	5	8
BARRANQUILLA																
5000	4	TC	7	4	5	1	0	-4	-5	-7	-4	-6	-9	7	6	1601 N.M.I.
10000	C	1	5	3	3	-1	-2	-1	-1	-9	-3	-4	-10	7	6	5
18000	-6	-9	5	0	0	-2	-12	3	7	-5	C	0	-6	9	9	7
BARRANQUILLA																
5000	2	TC	6	3	4	C	-1	-3	-5	-5	-3	-5	-9	7	6	1574 N.M.I.
10000	C	1	7	3	3	-1	-3	0	-1	-9	-3	-4	-8	7	7	6
18000	-6	-10	4	-1	-2	-12	-14	3	6	-4	0	0	-6	10	5	8
BARRANQUILLA																
5000	1	TC	4	2	2	-1	-2	-2	-4	-6	-2	-4	-9	7	6	1415 N.M.I.
10000	C	0	3	3	3	-2	-4	0	-1	-6	-3	-3	-8	8	7	5
18000	-5	-5	3	0	0	-3	-11	3	C	-3	-1	0	-5	10	10	8

HEIGHT IN FEET	EQUIVALENT HEAD IN D.S.												STANDARD DEVIATION				
	DIRECT						RETURN						JAN	APR	JUL	OCT	
	JAN	APR	JUL	UCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**ASO	A75	A85			

◆HEALTHINESS---COMPUTED FOR A 120-KT AIRSPEED.

SHEET 1345 72

EQUIVALENT HEADWINDS AND STANCAE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*												STANDARD DEVIATION				
	DIRECT					RETURN											
	JAN	APR	JUL	OCT	**ASC	A75	A65	JAN	APR	JUL	OCT	**ASO	A75	A85	JAN	APR	JUL
BARRANQUILLA	TC	6	0	4	4	C	C	-2	-6	-5	-4	-5	-9	-10	7	6	913 N.MI.
5000	1	4	0	4	4	C	C	-3	-3	-9	-4	-5	-10	-11	7	7	4
10000	3	4	0	5	5	C	0	4	4	-5	-3	-5	-10	-11	7	7	6
18000	-5	-5	5	3	C	-7	-9	0	-4	-5	-3	-1	-7	-8	10	9	6
BARRANQUILLA	TC	3	1	0	C	-3	-5	0	-3	-1	0	-1	-5	-6	7	6	1406 N.MI.
5000	-1	3	1	0	C	-3	-5	1	-5	-1	-2	-2	-7	-8	7	6	5
10000	-2	4	0	2	C	-4	-5	1	-5	-1	-2	-2	-7	-8	8	8	6
18000	-3	1	1	2	C	-5	-7	0	-4	-1	-3	-2	-8	-10	11	10	7
BARRANQUILLA	TC	7	3	3	2	-1	-2	0	-7	-3	-3	-4	-8	-9	7	6	446 N.MI.
5000	-1	7	3	3	2	-1	-2	-1	-7	-3	-3	-4	-8	-9	7	6	5
10000	1	4	0	4	4	C	-2	-1	-4	-9	-4	-5	-10	-11	7	7	7
18000	-3	-2	4	3	C	-6	-7	2	2	-4	-3	-1	-7	-9	10	10	8
BARRANQUILLA	TC	-3	-2	-3	-4	-6	-6	4	3	3	3	3	1	0	3	3	1688 N.MI.
5000	-4	-3	-2	-3	-4	-6	-6	0	3	0	1	1	-2	-2	4	4	3
10000	1	-3	-1	-1	-2	-5	-5	-1	C	1	1	0	-4	-5	7	6	5
18000	1	C	-2	-2	-1	-5	-6	-2	C	0	-1	-1	-5	-6	7	7	6
BARRANQUILLA	TC	-1	-2	C	-2	-4	-5	2	1	2	1	1	0	-1	4	3	1304 N.MI.
5000	-2	-1	-2	C	-2	-4	-5	-2	C	-1	-1	-1	-5	-5	4	4	4
10000	2	0	0	0	C	-3	-3	-2	C	0	-1	-1	-5	-5	4	4	5
18000	2	0	0	0	C	-4	-5	-2	C	0	-1	-1	-5	-6	7	7	6
BARRANQUILLA	TC	7	5	2	1	-3	-4	-10	-7	-4	-2	-6	-10	-11	6	6	679 N.MI.
5000	10	7	16	7	5	4	3	-8	-7	-16	-6	-10	-15	-16	6	6	4
10000	5	4	12	6	7	1	0	-5	-3	-11	-6	-7	-13	-14	6	6	6
18000	5	4	12	6	7	1	0	-5	-3	-11	-6	-7	-13	-14	9	9	7
BARRANQUILLA	TC	3	2	1	1	-3	-4	-1	-3	-2	-1	-2	-7	-8	7	7	1750 N.MI.
5000	6	3	2	2	2	C	-5	0	-3	-3	-3	-3	-8	-9	8	8	5
10000	-3	2	2	2	C	-4	-5	-1	-4	-3	-3	-3	-8	-9	11	11	6
18000	-6	-5	1	2	-1	-6	-10	-1	C	-2	-5	-3	-9	-10	11	11	6
BARRANQUILLA	TC	6	C	C	C	-2	-3	-6	C	0	0	-1	-5	-6	6	5	283 N.MI.
5000	5	C	C	C	1	-2	-4	-5	C	-1	0	-2	-6	-7	5	4	4
10000	5	C	C	C	1	-2	-4	-5	C	-1	0	-2	-6	-7	5	6	6
18000	5	C	C	C	1	-2	-4	-5	C	-1	-1	-2	-7	-8	10	9	7
BARRANQUILLA	TC	2	2	1	1	-2	-3	-1	-3	-2	-1	-2	-7	-8	7	7	1764 N.MI.
5000	C	2	2	1	1	-2	-3	-1	-3	-2	-1	-2	-7	-8	7	7	5
10000	-3	1	2	2	C	-4	-6	0	-3	-3	-2	-2	-7	-9	8	8	6
18000	-7	-6	1	1	-2	-5	-11	0	C	-2	-4	-2	-8	-10	11	11	6

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	**A5C	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85	
BARRANCLILLA	TC	5	6	4	4	4	0	-4	-5	-6	-4	-5	-9	-10	1431 N.MI.
5000	3	5	6	4	4	4	0	-1	-2	-8	-3	-4	-9	-10	6 4 6
10000	0	1	8	3	3	-1	-2	-1	-2	-8	-3	-4	-9	-10	7 7 5 6 6
18000	-8	-9	4	0	-2	-10	-12	5	7	-4	-1	0	-5	-6	10 5 5 8
BARRANCLILLA	TC	-11	-10	-12	-11	-12	-15	12	11	13	11	11	8	7	1207 N.MI.
5000	-11	-10	-12	-11	-12	-15	-15	9	5	15	9	10	6	5	5 5 4 4
10000	-5	-6	-14	-5	-10	-14	-15	3	4	12	7	6	1	0	5 5 5 4 4
18000	-3	-4	-12	-7	-7	-12	-13	-1	-5	-4	-3	-4	-8	-9	8 7 6 5
BARRANCLILLA	TC	5	4	4	3	3	-1	-1	-2	-6	-4	-4	-8	-9	1093 N.MI.
5000	1	5	4	4	3	3	-1	0	-2	-6	-4	-4	-8	-9	7 6 5 6
10000	0	2	6	4	4	3	-3	5	4	-4	-2	0	-6	-7	8 7 6 7
18000	-7	-8	4	2	-1	-8	-10	-1	-5	-4	-2	0	-6	-7	10 10 6 8
BARRANCLILLA	TC	0	-2	-3	-3	-3	-5	7	0	2	2	2	-2	-3	484 N.MI.
5000	-7	0	-1	0	-1	-4	-7	3	0	0	0	0	-5	-6	7 6 5 6
10000	-3	0	-1	0	-1	-4	-7	5	3	1	1	2	-3	-5	8 7 7 7
18000	-5	-3	-1	0	-3	-5	-10	-1	6	7	7	7	3	2	11 10 7 8
BARRANCLILLA	TC	-6	-7	-7	-7	-8	-13	11	6	7	7	7	3	2	638 N.MI.
5000	-10	-6	-7	-7	-8	-12	-13	0	2	6	2	4	0	-1	6 6 5 5
10000	-6	-2	-7	-2	-5	-10	-11	4	2	5	4	3	-2	-3	7 7 6 7
18000	-5	-3	-5	-3	-5	-10	-12	-1	-5	-2	-1	-4	-9	-11	10 10 7 8
BARRANCLILLA	TC	5	3	2	4	1	0	-11	-5	-2	-1	-4	-9	-11	553 N.MI.
5000	12	5	3	2	4	1	0	-9	-7	-16	-6	-10	-15	-16	6 6 4 4
10000	10	7	16	7	5	5	4	-6	-3	-12	-6	-7	-13	-15	6 6 6 6
18000	6	3	12	7	7	1	0	-4	-3	-12	-6	-7	-13	-15	9 9 7 7
BARRANCLILLA	TC	8	6	3	6	2	1	-9	-8	-5	-2	-6	-10	-11	856 N.MI.
5000	5	8	6	3	6	2	1	-8	-6	-15	-6	-9	-14	-15	6 6 4 4
10000	8	7	16	7	5	4	3	-4	-2	-11	-6	-7	-12	-13	6 6 5 5
18000	4	2	12	6	6	0	-1	-4	-2	-11	-6	-7	-12	-13	9 8 6 7
BARRANCLILLA	TC	-3	0	-2	-3	-5	-5	3	3	1	2	2	0	0	1033 N.MI.
5000	-3	-3	0	-2	-3	-5	-5	1	3	0	1	1	-1	-2	3 3 3 3
10000	-1	-3	-1	-1	-2	-5	-6	0	3	0	2	0	-3	-4	4 4 5 4
18000	0	0	-2	-3	-2	-6	-7	0	0	2	2	0	-3	-4	7 6 7 5
BARRANCLILLA	TC	-3	-5	-5	-6	-10	-11	9	3	5	5	5	1	0	537 N.MI.
5000	-5	-3	-5	-5	-6	-10	-11	5	1	3	1	2	-2	-3	6 6 5 6
10000	-5	-1	-4	-1	-3	-8	-9	5	3	3	2	3	-2	-4	7 7 7 7
18000	-5	-3	-3	-2	-4	-10	-11	5	3	3	2	3	-2	-4	10 10 7 8

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--CENTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION				
	DIRECT						RETURN										
	JAN	APR	JUL	OCT	MAY	SEP	JAN	APR	JUL	OCT	MAY	SEP	JAN	APR	JUL	OCT	
BARRANCUILLA	TC	4	3	2	2	-1	-2	-1	-4	-3	-2	-3	-7	6	5	6	
5000	C	1	4	3	1	-3	-4	0	-2	-4	-3	-3	8	7	5	7	
10000	-E	-7	2	1	-2	-10	-12	4	3	-2	-2	0	11	10	6	9	
BARRANCUILLA	TC	0	-2	0	C	-3	-3	-1	C	3	0	0	-2	3	4	3	
5000	1	3	4	4	4	1	C	-7	-3	-5	-4	-5	4	4	6	5	
10000	4	1	2	4	2	-2	-3	-4	-1	-3	-4	-4	8	7	7	6	
BARRANCUILLA	TC	8	6	4	6	3	2	-9	-7	-5	-3	-6	6	6	4	4	
5000	5	7	16	7	5	4	3	-7	-7	-15	-6	-9	6	6	6	6	
10000	4	2	11	6	6	C	-1	-4	-2	-11	-6	-7	9	8	6	7	
BARRANCUILLA	TC	3	2	1	1	-3	-4	-1	-4	-2	-1	-3	7	7	5	7	
5000	C	3	2	2	1	-4	-5	0	-5	-3	-3	-3	8	8	6	7	
10000	-2	-4	1	3	-1	-8	-10	-4	-2	-2	-6	-4	11	11	6	10	
BARRANCUILLA	TC	-10	-11	-9	-11	-15	-15	13	11	12	10	11	7	6	4	5	
5000	-12	-10	-13	-6	-5	-14	-15	11	6	13	7	9	4	6	6	6	
10000	-5	-3	-11	-6	-7	-13	-14	5	4	11	7	7	10	9	7	8	
BELM	TC	10	12	9	10	7	7	-10	-10	-11	-8	-10	-13	1501 N.M.I.	4	3	3
5000	5	11	13	11	10	7	7	-9	-10	-13	-10	-11	-14	5	5	5	
10000	6	7	11	13	5	4	3	-6	-6	-11	-12	-10	-14	4	5	4	
BELM	TC	8	13	10	10	5	4	-8	-8	-13	-10	-10	-14	1096 N.M.I.	6	5	5
5000	6	9	7	6	6	2	1	-6	-6	-8	-6	-7	-11	5	6	5	
10000	1	2	5	4	3	-1	-2	-1	-2	-6	-4	-4	-9	8	8	7	
BELM	TC	6	6	3	5	2	1	-5	-6	-9	-4	-6	-9	1474 N.M.I.	4	3	4
5000	C	5	7	9	6	3	2	-2	-5	-7	-8	-7	-10	5	5	5	
10000	4	4	0	5	3	-1	-2	-4	-4	0	-5	-4	-9	7	7	8	
BELM	TC	5	5	4	4	1	1	-5	-5	-9	-4	-6	-9	1814 N.M.I.	4	3	4
5000	6	4	4	4	4	3	2	-5	-5	-9	-4	-5	-8	4	4	4	
10000	7	4	3	5	5	1	0	-7	-4	-3	-5	-6	-11	7	6	7	
18000																5	

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--CENTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PINS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS IN KNOTS												STANDARD DEVIATION			
	DIRECT				RETURN											
	JAN	APR	JUL	OCT	APR	MAY	JUN	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	
BELEP																
5000	5	10	11	5	7	6		-9	-10	-11	-8	-10	-13	-13	1680 N.M.I.	
10000	5	10	14	10	7	6		-9	-10	-14	-10	-11	-14	-15	4 3	
18000	6	7	11	11	8	4	3	-6	-6	-11	-11	-9	-13	-14	4 5 4 5	
BELEP																
5000	10	9	14	11	11	6	5	-11	-5	-14	-11	-12	-17	-18	577 N.M.I.	
10000	7	7	6	6	7	2	1	-7	-8	-7	-6	-7	-12	-13	7 6 6	
18000	5	5	5	7	5	0	-1	-3	-5	-6	-8	-6	-11	-13	8 8 6	
BELEP																
5000	5	7	14	10	10	7	6	-9	-5	-14	-10	-11	-14	-15	1851 N.M.I.	
10000	6	7	11	7	7	4	3	-6	-7	-11	-7	-8	-12	-13	4 4 4 4	
18000	1	1	8	5	5	0	-2	0	-1	-8	-5	-4	-9	-10	5 5 4 5	
BELEP																
5000	5	7	14	10	10	6	6	-9	-5	-14	-10	-11	-14	-15	1626 N.M.I.	
10000	6	6	10	7	7	2	2	-6	-6	-10	-7	-8	-11	-12	5 4 4 4	
18000	1	1	7	4	2	-2	-3	0	-1	-7	-4	-4	-8	-9	5 5 5 5	
BELEP																
5000	-14	-13	-16	-15	-15	-20		14	13	17	15	14	10	9	904 N.M.I.	
10000	-5	-10	-5	-5	-10	-14	-15	9	10	9	10	9	5	4	5 4 4 7	
18000	-8	-4	-7	-10	-8	-13	-15	8	4	7	10	7	1	0	5 7 5 5	
BELEP																
5000	4	2	1	4	4	0	-1	-2	-2	-3	-4	-4	-7	-8	1318 N.M.I.	
10000	1	2	1	1	1	-3	-4	-1	-3	-1	-1	-2	-6	-8	4 4 4 7	
18000	-1	0	0	0	0	-6	-7	0	0	-2	0	-1	-6	-8	6 6 7 9	
BELEP																
5000	6	7	7	5	5	2	2	-6	-7	-7	-5	-7	-10	-11	1293 N.M.I.	
10000	5	5	7	8	6	2	1	-5	-5	-7	-8	-7	-11	-12	4 4 4 7	
18000	3	3	0	4	2	-2	-4	-3	-3	-3	-4	-3	-8	-9	6 6 7 9	
BELEP																
5000	6	9	14	10	10	6	6	-9	-5	-14	-10	-11	-14	-15	1739 N.M.I.	
10000	6	7	10	7	7	4	3	-6	-7	-11	-7	-8	-12	-13	5 4 4 4	
18000	1	1	7	5	5	-1	-2	0	-1	-7	-5	-4	-9	-10	5 5 5 4	
BELEP																
5000	5	8	8	8	6	2	2	-8	-8	-8	-7	-8	-10	-11	1874 N.M.I.	
10000	5	12	13	12	11	8	7	-9	-11	-12	-11	-11	-14	-15	3 3 3 3	
18000	6	5	7	13	6	4	2	-8	-5	-7	-13	-9	-13	-14	4 4 6 6	

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.
 **A--EFFECTS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN INDICATES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

REPORT IN FEET	E C U I V A L E N T H E A D I N D S *														STANDARDE DEVIATION			
	DIRECT				RETURN													
	JAN	APR	JUL	CT	WASC	A75	ABD	JAN	APR	JUL	UCT	WASO	A75	AB5	JAN	APR	JUL	CT
RELEP	TC	TC	TC	TC	WILLENSTAC			-11	-5	-13	-11	-12	-15	-16	5			
5000	10	14	11	11				-7	-8	-11	-8	-9	-12	-13	4			
10000	7	11	8	8				-	-4	-9	-7	-6	-11	-12	7			
15000	2	9	7	5														
RELEP	TC	TC	TC	TC	BCRDEAL			0	0	3	2	1	-7	-9	15			
5000	-2	-1	-3	-3				3	3	8	8	5	-3	-6	16			
10000	-6	-5	-9	-8				1	4	13	11	7	-6	-9	23			
15000	-8	-15	-15	-12														
RELEP	TC	TC	TC	TC	BFACISI			-8	-6	-9	-8	-8	-15	-17	14			
5000	7	9	9	6				-12	-5	-10	-8	-10	-15	-21	15			
10000	10	7	6	8				-18	-11	-15	-14	-15	-27	-30	20			
15000	14	12	10	11														
RELEP	TC	TC	TC	TC	CALAC			-8	-6	-9	-6	-8	-13	-15	10			
5000	7	9	9	5				-11	-10	-11	-8	-11	-17	-19	10			
10000	5	11	7	5				-20	-17	-17	-14	-17	-26	-28	15			
15000	15	13	15	13														
RELEP	TC	TC	TC	TC	LPATEALACCL			1	2	4	4	2	-8	-8	16			
5000	-3	-5	-5	-5				4	3	9	8	6	-3	-6	17			
10000	-7	-9	-10	-8				2	5	14	11	8	-3	-10	24			
15000	-5	-9	-10	-13														
RELEP	TC	TC	TC	TC	DIYARAKIF			-6	-5	-9	-6	-7	-13	-14	10			
5000	5	8	8	5				-13	-5	-9	-9	-10	-17	-19	11			
10000	11	9	8	5				-15	-14	-17	-17	-17	-26	-28	15			
15000	15	11	15	13														
RELEP	TC	TC	TC	TC	ISTANDUL			-8	-6	-9	-7	-8	-15	-16	12			
5000	6	9	8	6				-12	-10	-11	-9	-11	-19	-21	13			
10000	11	11	8	5				-18	-13	-18	-17	-17	-28	-30	18			
15000	14	10	14	13														
RELEP	TC	TC	TC	TC	LMIR			-8	-6	-9	-6	-8	-15	-16	12			
5000	6	9	8	6				-12	-10	-11	-9	-11	-19	-21	13			
10000	10	11	7	5				-19	-14	-18	-16	-17	-28	-30	18			
15000	15	10	10	13														
RELEP	TC	TC	TC	TC	KEFLAVIN			-8	-6	-9	-6	-8	-15	-16	12			
5000	-10	-4	-3	-5				-12	-10	-11	-9	-11	-19	-21	13			
10000	-12	-7	-6	-8				-19	-14	-18	-16	-17	-28	-30	18			
15000	-21	-15	-10	-14														

*MEADIAN--COMPUTED FROM A LOG-NORMAL SPEED.

•••A—LARGES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
WIALS SIGN LARGES HEADINGS.

ANNUAL EQUIVALENT
SIGNIFICANCES

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E C L I V A L E N T H E A D W I N D S												STANDARD DEVIATION		
	DIRECT						RETURN						JAN APR JUL OCT		
	JAN	APR	JUL	OCT	00450	A75	A85	JAN	APR	JUL	OCT	00450	A75	A85	
WITELRG AE															
5000	-8	-3	-7	-10	-7	-14	-16	7	2	6	6	5	-1	-3	1573 N.MI.
10000	-13	-7	-10	-13	-11	-10	-20	11	6	10	12	9	2	1	9 0 15
18000	-10	-12	-17	-20	-17	-27	-29	12	8	15	16	13	3	0	12 11 0 10
WITELRG AB															
5000	-1	-1	-2	-1	-2	-7	-9	0	1	2	0	0	-4	-6	1463 N.MI.
10000	-3	-6	-8	-7	-7	-13	-14	1	5	7	6	5	-1	-2	0 0 7 0
18000	-3	-9	-13	-11	-10	-20	-26	0	6	11	8	5	-1	-4	10 10 7 0
WITELRG AC															
5000	-2	-1	-2	-3	-3	-10	-12	0	0	2	2	1	-6	-8	944 N.MI.
10000	-6	-6	-9	-9	-6	-14	-18	3	4	8	8	6	-1	-3	12 11 9 11
18000	-8	-9	-16	-14	-13	-23	-26	1	5	13	10	7	-3	-6	10 17 12 16
WITELRG AD															
5000	7	5	7	4	5	-1	-2	-8	-5	-7	-4	-6	-13	-15	904 N.MI.
10000	7	6	8	4	4	-1	-3	-10	-7	-9	-5	-8	-16	-18	12 10 9 10
18000	12	5	6	5	6	-3	-5	-17	-9	-10	-10	-12	-22	-25	10 13 10 12
WITELRG AE															
5000	7	6	8	5	5	1	0	-8	-6	-8	-5	-7	-12	-13	1907 N.MI.
10000	9	9	9	5	6	2	0	-11	-10	-10	-7	-10	-16	-17	9 7 6 7
18000	13	12	12	9	11	3	1	-19	-17	-14	-12	-16	-24	-26	9 0 7 0
WITELRG AF															
5000	-11	-5	-8	-9	-5	-10	-20	9	4	7	7	6	-2	-4	277 N.MI.
10000	-14	-8	-9	-12	-11	-21	-24	12	6	8	10	8	-1	-3	16 14 11 14
18000	-24	-13	-15	-15	-16	-33	-37	19	9	11	14	13	-1	-5	10 16 12 14
WITELRG AG															
5000	6	4	6	8	6	-1	-3	-8	-5	-7	-9	-8	-15	-17	1169 N.MI.
10000	8	5	8	10	7	0	-2	-10	-7	-8	-12	-10	-18	-20	12 11 9 11
18000	9	8	14	14	11	0	-3	-15	-12	-17	-10	-16	-28	-31	14 13 10 12
WITELRG AH															
5000	7	5	8	5	6	-1	-3	-8	-5	-8	-5	-7	-15	-17	625 N.MI.
10000	5	6	8	5	7	-2	-4	-11	-8	-9	-6	-9	-18	-20	14 11 10 11
18000	13	6	6	6	6	-3	-6	-18	-10	-11	-12	-13	-25	-28	15 14 11 14
WITELRG AI															
5000	-10	-4	-	-	-	-13	-15	7	2	2	4	3	-3	-5	1036 N.MI.
10000	-15	-9	-8	-10	-11	-15	-21	11	6	6	7	7	0	-2	12 10 0 11
18000	-24	-17	-13	-16	-18	-25	-32	17	12	9	12	12	1	0	13 12 9 11

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT MEANINGS FOR INDICATED PER CENT RELIABILITIES.

PLUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION			
	DIRECT					RETURN					JAN APR JUL OCT			
	JAN	APR	JUL	OCT	***A50	A75	A85	JAN	APR	JUL	OCT	***A50	A75	A85
BITELFC AE														
5000	TC	5	9	6	6	0	0	-7	-6	-9	-6	-8	-13	-15
10000	TC	5	11	7	5	0	0	-12	-10	-12	-9	-11	-18	-20
18000	TC	15	12	16	13	14	2	-20	-16	-18	-16	-18	-27	-29
BITELFC AE														
5000	TC	0	1	0	0	-8	-8	-4	-1	-2	0	-2	-10	-11
10000	TC	-3	-4	-3	-3	-11	-13	-1	1	3	2	1	-6	-8
18000	TC	-6	-9	-7	-6	-17	-15	-6	1	5	2	0	-10	-12
BITELFC AE														
5000	TC	-1	0	-1	-1	-7	-9	-1	0	0	0	0	-7	-8
10000	TC	-3	-7	-6	-6	-13	-15	0	2	6	5	3	-3	-5
18000	TC	-8	-13	-10	-10	-15	-22	-2	4	10	6	5	-5	-8
BITELFC AE														
5000	TC	-11	-5	-7	-8	-17	-20	9	4	0	6	6	-2	-5
10000	TC	-14	-8	-9	-11	-21	-23	11	6	7	9	8	-1	-4
18000	TC	-25	-14	-13	-16	-32	-36	19	5	9	12	11	-2	-5
BITELFC AE														
5000	TC	5	7	4	5	-2	-4	-8	-5	-8	-5	-7	-15	-17
10000	TC	5	7	4	6	-3	-5	-11	-7	-8	-6	-8	-18	-20
18000	TC	5	6	6	7	-5	-6	-17	-5	-10	-11	-12	-25	-28
BITELFC AE														
5000	TC	-5	-2	0	-1	-2	-10	2	0	0	0	0	-6	-7
10000	TC	-8	-7	-4	-5	-13	-15	4	5	2	2	3	-3	-5
18000	TC	-15	-8	-13	-14	-24	-27	10	10	5	7	7	-1	-4
BITELFC AE														
5000	TC	2	2	5	3	-4	-8	-5	-3	-5	-6	-5	-13	-16
10000	TC	2	2	5	3	-5	-8	-5	-4	-6	-8	-6	-16	-18
18000	TC	2	10	7	5	-5	-12	-8	-8	-14	-14	-12	-25	-29
BITELFC AE														
5000	TC	0	9	5	6	1	0	-7	-6	-9	-6	-8	-13	-14
10000	TC	5	11	7	5	2	1	-12	-10	-11	-8	-11	-17	-19
18000	TC	13	10	12	14	5	3	-20	-17	-18	-16	-18	-27	-29
BITELFC AE														
5000	TC	0	-1	-2	-1	-5	-11	-1	0	0	0	0	-8	-10
10000	TC	-4	-8	-7	-7	-15	-17	1	3	7	6	4	-4	-6
18000	TC	-5	-14	-12	-11	-22	-25	0	4	11	8	6	-6	-9

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--LARGEST ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

*MINUS SIGN LARGEST HEADWINDS.

EQUIVALENT HEADWINDS AND STANARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

WEIGHT IN FEET	E C U I V A L E N T H E A D W I N D S *												STANDARD DEVIATION					
	D I R E C T						R E T U R N											
	JAN	APR	JUL	OCT	**A5C	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85	JAN	APR	JUL	OCT
21TELAE AE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	1	1	3	4	2	-4	-6	-3	-2	-3	-6	-4	-11	-12	11	10	8	11
10000	C	1	3	3	1	-6	-8	-3	-3	-4	-5	-4	-12	-14	13	12	10	12
18000	-2	-2	5	4	1	-10	-13	-7	-2	-2	-9	-8	-19	-22	19	17	14	17
21TELAE AE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	4	6	3	4	-2	-4	-8	-4	-6	-3	-6	-13	-15	13	11	9	10
10000	6	3	5	2	4	-4	-6	-8	-5	-7	-4	-7	-15	-17	14	13	10	13
18000	5	1	1	2	2	-7	-10	-14	-6	-5	-6	-8	-19	-22	19	17	13	16
21TELAE AE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	C	C	0	-1	C	-8	-10	-2	-1	0	0	-1	-9	-11	14	12	10	12
10000	-2	-4	-7	-6	-6	-14	-16	0	2	6	4	3	-5	-8	15	14	11	12
18000	-3	-6	-12	-11	-5	-21	-24	-3	2	8	6	3	-9	-12	21	19	14	18
21TELAE AE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-E	-9	-8	-7	-E	-12	-12	8	5	8	8	8	5	4	5	5	4	4
10000	-10	-6	-12	-7	-5	-13	-14	11	6	12	7	8	5	4	5	5	6	5
18000	-5	-3	-11	-7	-7	-12	-14	5	3	11	7	6	1	0	8	8	6	6
21TELAE AE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	C	3	3	1	1	-1	-2	-1	-2	-3	-2	-3	-6	-7	6	5	4	5
10000	-2	2	3	2	1	-3	-4	1	-2	-3	-2	-2	-6	-7	7	6	5	6
18000	-E	-4	2	1	-1	-7	-5	2	C	-2	-3	-1	-6	-7	9	9	5	7
21TELAE AE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	3	7	7	3	3	1	C	-3	-7	-6	-3	-5	-8	-9	6	5	3	4
10000	2	3	10	4	4	C	0	-2	-3	-10	-4	-5	-9	-10	5	5	4	5
18000	-2	-3	7	2	1	-4	-6	0	2	-7	-2	-2	-7	-9	8	7	5	6
21TELAE AE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	1	5	4	3	3	C	-1	-1	-5	-4	-3	-4	-7	-8	6	5	4	5
10000	C	2	6	3	2	-1	-2	-1	-2	-7	-3	-4	-8	-9	6	6	5	5
18000	-5	-5	4	1	-1	-7	-9	3	3	-4	-2	-1	-6	-7	9	8	5	7
21TELAE AE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	2	6	6	3	4	C	0	-3	-6	-5	-3	-5	-8	-9	6	5	4	5
10000	1	2	9	3	3	C	-1	-2	-2	-9	-3	-5	-9	-10	6	5	4	5
18000	-4	-5	6	1	C	-E	-8	1	3	-6	-2	-2	-7	-8	8	8	5	7
21TELAE AE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	1	5	5	3	3	C	C	-2	-5	-5	-3	-5	-8	-9	6	5	4	5
10000	C	2	8	2	3	-1	-2	-1	-2	-8	-2	-4	-8	-9	6	6	5	5
18000	-E	-E	4	0	-1	-E	-9	2	3	-5	-1	-1	-6	-7	8	8	5	7

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--LENTS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

PIALS SIGN DECENTS HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION							
	DIRECT						RETURN													
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC								
ECGCTA	TC	4	4	FCMT BENNING																
5000	6	4	4	2	2	C	-1	-1	-4	-3	-2	-3	-3	-6	-7		1779 N.MI.	5	4	5
10000	6	1	5	3	4	-2	-3	0	-2	-6	-3	-3	-3	-8	-9		5	6	5	6
15000	-6	-6	3	3	-2	-6	-10	3	3	-3	-1	0	0	-5	-6		8	8	5	7
ECGCTA	TC	3	3	FCMT BRAC/PCPE																
5000	1	3	3	2	2	-1	-1	-1	-3	-3	-2	-3	-3	-6	-7		1849 N.MI.	5	4	5
10000	-4	1	3	2	1	-3	-4	0	-2	-4	-2	-3	-3	-7	-8		7	6	5	6
15000	-6	-4	2	1	-1	-7	-5	2	1	-2	-2	-1	-1	-6	-7		9	5	5	8
ECGCTA	TC	2	4	FCMT MUCKER																
5000	6	4	4	3	3	C	-1	-1	-5	-4	-3	-4	-4	-7	-8		1718 N.MI.	5	4	5
10000	6	1	6	3	4	-1	-2	-1	-2	-6	-3	-4	-4	-8	-9		6	6	5	6
15000	-6	-5	3	1	-1	-7	-9	3	3	-4	-1	0	0	-6	-7		9	8	5	7
ECGCTA	TC	3	2	GLANTANAPC EAY																
5000	-1	3	2	1	1	-2	-3	0	-3	-2	-1	-2	-2	-5	-6		918 N.MI.	5	4	4
10000	-1	1	3	2	1	-3	-4	1	-1	-4	-1	-2	-2	-6	-7		6	6	6	6
15000	-3	-1	1	0	-1	-6	-7	3	1	-2	0	0	0	-5	-6		9	8	6	7
ECGCTA	TC	8	4	GLATAMALA CITY																
5000	1	8	4	0	3	C	-1	-2	-7	-3	0	-3	-3	-7	-7		1137 N.MI.	5	3	4
10000	6	6	13	6	7	3	2	-6	-5	-13	-6	-8	-8	-12	-13		5	5	5	5
15000	5	4	12	6	6	1	C	-5	-4	-11	-6	-7	-7	-12	-13		8	7	6	6
ECGCTA	TC	0	4	HAVANA																
5000	6	4	4	3	3	C	-1	0	-6	-4	-3	-4	-4	-7	-8		1202 N.MI.	6	4	4
10000	1	4	8	4	4	C	0	-2	-3	-8	-4	-5	-5	-9	-10		6	6	5	5
15000	-2	-1	5	3	1	-4	-5	2	1	-5	-3	-2	-2	-7	-8		8	8	5	7
ECGCTA	TC	2	4	MCMESTEAD AFB																
5000	6	2	4	3	3	C	-1	0	-5	-4	-3	-4	-4	-7	-8		1301 N.MI.	6	4	5
10000	1	3	8	4	3	C	-1	-1	-3	-6	-3	-4	-4	-8	-9		6	6	5	5
15000	-4	-2	4	2	C	-5	-7	3	2	-4	-2	-1	-1	-6	-7		9	8	5	7
ECGCTA	TC	1	4	MUNTER AFB																
5000	6	4	3	2	2	C	-1	-2	-4	-3	-2	-3	-3	-7	-8		1689 N.MI.	6	4	5
10000	6	1	4	3	1	-2	-3	0	-2	-5	-3	-3	-3	-7	-8		6	6	5	6
15000	-6	-3	3	1	-1	-7	-9	3	2	-3	-2	-1	-1	-6	-7		9	8	5	7
ECGCTA	TC	2	4	JACKSONVILLE																
5000	1	2	4	2	3	C	-1	-2	-4	-3	-2	-3	-3	-7	-8		1604 N.MI.	6	4	5
10000	6	1	5	3	2	-1	-2	0	-2	-5	-3	-3	-3	-7	-8		6	6	5	6
15000	-6	-4	3	1	-1	-5	-5	3	2	-3	-2	-1	-1	-6	-7		9	8	5	7

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

***--INDICATES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

PLUS SIGN INDICATES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCRD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	***C	A75	A85	JAN	APR	JUL	OCT	***A50	A75	A85	
ELUGCTA															
5000	TC	6	4	3	3	C	-1	0	-5	-4	-3	-4	-7	-8	1274 N.MI.
10000	1	3	7	4	3	0	-1	-1	-3	-7	-4	-4	-8	-9	5 4 5
18000	-3	-2	4	3	C	-5	-6	2	1	-4	-3	-2	-6	-8	8 8 5 7
ELUGCTA															
5000	TC	1	1	C	C	-3	-3	0	-2	-1	0	-1	-4	-5	1747 N.MI.
10000	-3	2	0	1	C	-4	-5	2	-3	-1	-1	-1	-5	-6	5 4 5
18000	-4	0	0	1	-1	-6	-7	2	-2	0	-1	-1	-6	-7	7 6 5 6 7
ELUGCTA															
5000	TC	2	3	2	2	C	-1	0	-5	-2	-2	-3	-6	-7	817 N.MI.
10000	C	2	5	3	2	-1	-2	0	-2	-6	-2	-3	-7	-8	5 4 4
18000	-2	0	3	2	C	-4	-6	1	C	-4	-2	-2	-7	-8	6 6 6 5 7
ELUGCTA															
5000	TC	-3	-3	-3	-4	-7	-7	5	4	3	4	4	1	0	1316 N.MI.
10000	-1	-4	0	-1	-2	-6	-6	1	4	0	1	1	-2	-3	3 4 4
18000	C	0	-1	-2	-1	-6	-7	0	C	1	2	0	-4	-5	5 4 6 5 6
ELUGCTA															
5000	TC	-1	-2	C	-2	-4	-5	3	1	2	0	1	-1	-1	1018 N.MI.
10000	2	0	1	2	C	-3	-3	-2	C	-2	-2	-2	-5	-6	3 4 4
18000	3	2	0	1	1	-3	-4	-3	-2	0	-2	-2	-7	-8	5 4 6 5 6
ELUGCTA															
5000	TC	8	3	C	2	C	-1	0	-7	-2	0	-3	-6	-7	848 N.MI.
10000	5	6	14	7	7	3	2	-5	-6	-14	-6	-8	-12	-13	5 4 4 3
18000	5	5	12	7	7	1	0	-5	-5	-12	-6	-8	-13	-14	5 6 5 7
ELUGCTA															
5000	TC	5	5	3	3	C	0	-2	-5	-5	-3	-4	-8	-9	1770 N.MI.
10000	1	2	8	3	3	C	-1	-1	-2	-8	-3	-4	-8	-9	5 4 5
18000	-5	-5	4	1	-1	-7	-8	2	3	-5	-2	-1	-6	-7	6 6 5 5 7
ELUGCTA															
5000	TC	-10	-5	-5	-10	-12	-13	8	11	9	9	9	6	5	1134 N.MI.
10000	-5	-10	-17	-10	-11	-15	-16	10	10	17	11	11	6	7	5 4 4
18000	-6	-6	-13	-5	-5	-14	-15	6	6	13	10	8	4	2	4 5 6 4 5
ELUGCTA															
5000	TC	1	5	4	3	C	-1	-1	-5	-4	-3	-4	-7	-8	1464 N.MI.
10000	C	2	5	3	3	-1	-2	0	-2	-6	-3	-3	-7	-8	5 4 5
18000	-5	-3	3	2	C	-6	-8	3	2	-4	-2	-1	-6	-7	6 6 5 5 7

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS																STANDARD DEVIATION	
	DIRECT						RETURN											
	JAN	APR	JUL	JUL	JUL	JUL	JAN	APR	JUL	OCT	**A50	A75	A85	JAN	APR	JUL		OCT
ECGCTA																		844 N.M.I.
5000	TC	U	U	U	U	U	TC	TC	U	U	U	U	U	6	5	4	4	
10000	-2	0	0	0	0	0	-2	0	-1	0	0	0	0	6	6	6	5	
15000	-4	-2	0	0	0	0	-4	1	0	0	0	0	0	9	9	6	7	
ECGCTA																	928 N.M.I.	
5000	TC	U	U	U	U	U	TC	TC	U	U	U	U	U	5	5	4	4	
10000	-2	0	0	0	0	0	-2	0	-1	0	0	0	0	6	6	6	5	
15000	-4	-2	0	0	0	0	-4	1	0	0	0	0	0	9	8	6	7	
ECGCTA																	672 N.M.I.	
5000	TC	U	U	U	U	U	TC	TC	U	U	U	U	U	6	4	4	3	
10000	-2	0	0	0	0	0	-2	0	-1	0	0	0	0	5	5	6	5	
15000	-4	-2	0	0	0	0	-4	1	0	0	0	0	0	9	8	7	7	
ECGCTA																	1038 N.M.I.	
5000	TC	U	U	U	U	U	TC	TC	U	U	U	U	U	5	4	3	3	
10000	-2	0	0	0	0	0	-2	0	-1	0	0	0	0	5	5	5	5	
15000	-4	-2	0	0	0	0	-4	1	0	0	0	0	0	8	8	6	6	
ECGCTA																	1476 N.M.I.	
5000	TC	U	U	U	U	U	TC	TC	U	U	U	U	U	3	3	4	4	
10000	-2	0	0	0	0	0	-2	0	-1	0	0	0	0	5	4	6	5	
15000	-4	-2	0	0	0	0	-4	1	0	0	0	0	0	7	7	7	5	
ECGCTA																	867 N.M.I.	
5000	TC	U	U	U	U	U	TC	TC	U	U	U	U	U	5	5	4	4	
10000	-2	0	0	0	0	0	-2	0	-1	0	0	0	0	6	6	6	5	
15000	-4	-2	0	0	0	0	-4	1	0	0	0	0	0	9	9	6	7	
ECGCTA																	1796 N.M.I.	
5000	TC	U	U	U	U	U	TC	TC	U	U	U	U	U	6	5	4	5	
10000	-2	0	0	0	0	0	-2	0	-1	0	0	0	0	7	6	5	6	
15000	-4	-2	0	0	0	0	-4	1	0	0	0	0	0	9	9	5	7	
ECGCTA																	698 N.M.I.	
5000	TC	U	U	U	U	U	TC	TC	U	U	U	U	U	5	3	4	3	
10000	-2	0	0	0	0	0	-2	0	-1	0	0	0	0	5	4	7	5	
15000	-4	-2	0	0	0	0	-4	1	0	0	0	0	0	9	8	8	6	
ECGCTA																	958 N.M.I.	
5000	TC	U	U	U	U	U	TC	TC	U	U	U	U	U	5	5	4	3	
10000	-2	0	0	0	0	0	-2	0	-1	0	0	0	0	5	5	5	5	
15000	-4	-2	0	0	0	0	-4	1	0	0	0	0	0	8	8	6	6	

*HEADWINDS--COMPUTED FOR A 100-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

PLUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	GCT	**DEC	A75	A85	JAN	APR	JUL	OCT	**A50		A75	A85	
BGGCTA		TO			WILLENSTAC											
5000	-4	-6	-4	-4	-5	-8	-9									
10000	-8	-3	-7	-4	-6	-10	-11									
18000	-6	-2	-7	-5	-6	-11	-12									
BRCEALX		TC			BFIACISI											
5000	7	4	7	4	5	-1	-3									
10000	12	9	12	9	10	2	0									
18000	15	12	15	15	15	4	2									
BRCEALX		TC			CAIRC											
5000	6	5	6	5	5	0	0									
10000	12	11	12	5	11	5	3									
18000	19	18	17	15	17	5	7									
BRCEALX		TC			CPATEALCCLX											
5000	-1	-1	0	0	0	-10	-12									
10000	1	3	8	7	5	-4	-7									
18000	4	4	11	9	6	-7	-11									
BRCEALX		TC			CPALPCAT											
5000	6	6	2	2	1	-8	-10									
10000	4	4	9	8	6	-2	-5									
18000	3	5	14	12	5	-4	-8									
BRCEALX		TC			CKAR											
5000	4	4	0	1	0	-4	-5									
10000	-1	-7	-5	-4	-5	-10	-11									
18000	-4	-9	-8	-7	-6	-14	-15									
BRCEALX		TC			DIYABANIR											
5000	5	4	7	5	5	0	-1									
10000	12	9	11	8	10	3	2									
18000	15	14	18	15	15	7	5									
BRCEALX		TC			MAMA AB											
5000	6	1	3	3	1	-6	-9									
10000	5	3	9	8	6	-3	-5									
18000	1	5	13	11	6	-5	-5									
BRCEALX		TC			ISTANBUL											
5000	6	4	6	4	5	-1	-2									
10000	12	9	11	8	10	2	0									
18000	14	12	19	15	15	5	3									

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

---CENOTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADINGS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS												STANCARE DEVIATION	
	DIRECT						RETURN							
	JAN	APR	JUL	JUL	JUL	JUL	JAN	APR	JUL	OCT	NOV	DEC		
ECMCEALA	7	4	0	5	5	0	-8	-5	-7	-5	-7	-13	-15	
5000	10	10	12	8	10	3	-13	-11	-12	-9	-12	-19	-21	
10000	10	14	20	15	10	7	-15	-17	-21	-18	-19	-28	-31	
18000														
ECMCEALA	-7	-3	-3	-3	-4	-12	4	1	1	0	1	-6	-8	
5000	-11	-5	-4	-3	-7	-17	6	2	2	2	2	-5	-7	
10000	-10	-12	-8	-11	-12	-24	8	6	4	4	5	-6	-9	
18000														
ECMCEALA	-6	-2	-6	-4	-6	-15	7	1	5	4	4	-3	-5	
5000	-10	-6	-10	-13	-11	-21	11	6	10	12	9	2	0	
10000	-17	-13	-17	-15	-17	-25	15	10	15	16	13	3	1	
18000														
ECMCEALA	-1	-1	-2	0	-2	-7	0	1	1	0	0	-5	-6	
5000	-2	-7	-7	-6	-6	-14	0	5	7	5	4	-1	-3	
10000	-4	-10	-12	-10	-10	-20	0	6	11	7	6	-2	-5	
18000														
ECMCEALA	-2	0	-1	-2	-2	-10	1	0	1	1	0	-7	-8	
5000	-5	-6	-9	-9	-8	-19	3	5	8	8	6	-2	-4	
10000	-8	-10	-10	-13	-13	-27	2	6	14	9	8	-3	-6	
18000														
ECMCEALA	5	5	7	4	6	0	-9	-5	-7	-4	-7	-14	-16	
5000	12	5	12	8	10	2	-13	-10	-13	-9	-12	-20	-22	
10000	17	12	15	13	14	4	-20	-15	-17	-15	-17	-27	-30	
18000														
ECMCEALA	-4	-1	-1	0	-2	-11	2	0	0	0	0	-8	-11	
5000	-5	0	2	0	0	-10	2	-1	-3	-2	-2	-11	-13	
10000	-11	-3	1	-1	-3	-17	4	-1	-6	-5	-3	-16	-20	
18000														
ECMCEALA	4	3	5	0	4	-2	-6	-4	-6	-7	-6	-13	-14	
5000	7	4	8	10	7	-1	-9	-6	-9	-11	-9	-16	-18	
10000	7	7	14	13	10	-2	-13	-11	-16	-17	-15	-25	-27	
18000														
ECMCEALA	7	4	7	4	5	-4	-8	-4	-7	-4	-6	-14	-16	
5000	12	5	12	5	10	0	-14	-10	-13	-10	-12	-21	-23	
10000	15	12	18	15	15	4	-16	-14	-20	-18	-18	-29	-32	
18000														

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DEACTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

PINS SIGN DEACTES HEADINGS.

EQUIVALENT HEADLINES AND STANCAE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADLINE														STANCAE DEVIATION			
	DIRECT							RETURN										
	JAN	APR	JUL	CCT	00A5C	A75	AB5	JAN	APR	JUL	CCT	00A50	A75	AB5				
EGNEEALA																		
5000		TC			NARSAMSSLAH													
10000	-10	-4			-6	-14	-15											
18000	-15	-8			-10	-15	-21											
	-23	-16			-18	-25	-31											
EGNEEALA		TC			NAIAPEV													
5000	5	1	0		1	-2	-4											
10000	6	-2	-1		1	-6	-7											
18000	1	-6	-3		-2	-5	-11											
EGNEEALA		TC			NICCSIA													
5000	7	5	7		5	0	-1											
10000	12	12	12		10	4	2											
18000	17	16	19		17	6	6											
EGNEEALA		TC			CPAN													
5000	5	1	4		1	-4	-6											
10000	3	0	-1		0	-8	-10											
18000	6	-1	-3		0	-11	-14											
EGNEEALA		TC			PCRT LYALTEV													
5000	1	0	0		0	-1	-9											
10000	-1	-4	-5		-5	-12	-14											
18000	-1	-7	-11		-7	-16	-20											
EGNEEALA		TC			PFESTNICH													
5000	-6	-2	-3		-2	-13	-15											
10000	-5	-3	-1		-3	-14	-16											
18000	-16	-7	-4		-7	-22	-26											
EGNEEALA		TC			AFENIA PAIA													
5000	0	1	4		3	-6	-8											
10000	4	4	9		6	-4	-2											
18000	3	5	14		12	-4	-8											
EGNEEALA		TC			ALPE													
5000	7	3	7		4	-2	-4											
10000	12	8	12		9	1	0											
18000	15	11	18		15	3	0											
EGNEEALA		TC			STCKHCLP													
5000	2	1	4		4	-4	-6											
10000	2	3	6		6	-3	-6											
18000	0	3	11		9	-6	-9											

* HEADLINES--COMPUTED FOR A 120-KT AIRSPEED.

**--CITIES ANNUAL EQUIVALENT HEADLINES FOR INDICATED PER CENT RELIABILITIES.

PALS SIGN CITIES HEADLINES.

EQUIVALENT HEADWINDS AND STAGNANT DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

MEANS---COMPUTED FOR A 120-KT AIRSPEED.
 **A--GIVES ANNUAL EQUIVALENT MEANS FOR INDICATED PER CENT RELIABILITIES.
 PIALS SIGA GIVES MEANS.

STANDARD DEVIATION

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.
*RATES--RATES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
*WINDS--WINDS LEASTES HEADINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS														STANDARD DEVIATION
	DIRECT							RETURN							
	JAN	APR	JUL	OCT	0005C	A75	A85	JAN	APR	JUL	OCT	0005C	A75	A85	
BRIGGETCHA 5000 10000 18000	TC	4	8	5	5	1	C	-6	-4	-9	-6	-7	-11	-12	1969 N.M.I.- 6 6 4 5
	5000	-1	7	2	1	-3	-4	C	C	-8	-2	-3	-8	-9	7 6 5 6
	18000	-14	4	-1	-5	-15	-17	11	12	-4	0	3	-3	-5	9 9 5 7
BRIGGETCHA 5000 10000 18000	TC	-7	-12	-9	-5	-14	-15	4	6	12	8	7	2	1	520 N.M.I.- 7 7 6 6
	5000	-4	-5	-9	-7	-11	-12	3	5	8	6	5	0	0	7 7 7 6
	18000	1	0	-6	-1	-2	-3	-1	C	5	1	1	-4	-5	9 9 8 6
BRIGGETCHA 5000 10000 18000	TC	6	10	7	7	3	2	-7	-6	-10	-7	-8	-12	-13	1483 N.M.I.- 6 6 5 6
	5000	C	1	4	3	-1	-2	-1	-1	-9	-4	-4	-9	-10	7 7 6 6
	18000	-10	-12	5	1	-3	-14	8	10	-5	-1	1	-5	-6	10 9 6 7
BRIGGETCHA 5000 10000 18000	TC	10	15	11	11	7	6	-10	-10	-15	-11	-12	-16	-17	805 N.M.I.- 7 6 5 6
	5000	7	5	15	7	2	1	-7	-5	-14	-7	-9	-14	-16	8 7 7 7
	18000	-2	-3	9	4	2	-7	1	3	-8	-4	-3	-9	-11	10 10 7 8
BRIGGETCHA 5000 10000 18000	TC	5	10	11	11	6	5	-9	-10	-15	-10	-12	-16	-17	541 N.M.I.- 7 7 6 6
	5000	7	5	14	7	2	1	-8	-5	-14	-7	-9	-14	-16	8 8 7 7
	18000	-3	-4	8	4	1	-8	2	4	-8	-3	-2	-9	-10	11 11 7 8
BRIGGETCHA 5000 10000 18000	TC	-11	-15	-13	-13	-16	-17	10	11	15	13	12	9	8	1946 N.M.I.- 5 4 4 5
	5000	-6	-10	-8	-5	-12	-13	8	8	9	8	8	5	4	5 4 5 5
	18000	-3	-3	-6	-7	-5	-10	3	3	6	6	4	0	0	7 6 6 4
BRIGGETCHA 5000 10000 18000	TC	5	5	8	5	6	5	-12	-6	-9	-7	-9	-12	-13	1431 N.M.I.- 5 5 3 4
	5000	10	7	15	7	5	4	-9	-6	-14	-7	-9	-13	-15	5 5 5 5
	18000	4	3	11	7	2	1	-4	-3	-11	-6	-7	-12	-13	8 7 5 6
BRIGGETCHA 5000 10000 18000	TC	5	14	9	10	7	6	-11	-8	-11	-9	-10	-13	-14	1720 N.M.I.- 5 5 4 4
	5000	5	6	15	7	5	4	-8	-6	-15	-7	-9	-14	-15	5 5 5 5
	18000	2	1	11	8	3	-1	-2	-1	-10	-6	-6	-10	-12	7 7 5 6
BRIGGETCHA 5000 10000 18000	TC	3	1	1	1	C	-4	-4	-3	-2	-1	-3	-5	-6	1845 N.M.I.- 4 4 3 3
	5000	3	2	4	3	C	C	-3	-2	-5	-3	-4	-7	-7	4 4 5 4
	18000	1	2	C	1	C	-3	-1	-2	0	-2	-2	-6	-7	7 6 7 5

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.
0005C--FLEET'S ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION				
	DIRECT						RETURN						JAN APR JUL OCT				
	JAN	APR	JUL	OCT	0005C	A75	A85	JAN	APR	JUL	OCT	0005C	A75	A85			
BRIDGEHEAD	TC	TC	TC	TC	SPAC	SPAC	SPAC	TC	TC	TC	TC	SPAC	SPAC	SPAC			
5000	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
10000	7	5	10	7	6	2	1	7	5	10	7	6	2	1			
18000	-2	-4	9	4	2	-5	-7	1	3	-8	-4	-3	-9	-11			
BRIDGEHEAD	TC	TC	TC	TC	SPAC	SPAC	SPAC	TC	TC	TC	TC	SPAC	SPAC	SPAC			
5000	3	3	7	4	4	C	-1	-4	-4	-8	-5	-6	-10	-11			
10000	-4	-1	5	2	C	-5	-6	2	C	-5	-2	-2	-7	-8			
18000	-15	-15	2	-1	-6	-16	-18	11	11	-3	0	2	-4	-5			
BRIDGEHEAD	TC	TC	TC	TC	TALARA	TALARA	TALARA	TC	TC	TC	TC	TALARA	TALARA	TALARA			
5000	4	6	3	5	4	2	1	-4	-5	-3	-5	-5	-7	-8			
10000	10	7	10	9	5	6	5	-9	-6	-11	-9	-9	-12	-13			
18000	7	4	8	8	6	2	1	-8	-3	-8	-8	-7	-12	-13			
BRIDGEHEAD	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC			
5000	11	8	12	10	10	7	6	-11	-8	-12	-10	-11	-14	-15			
10000	6	6	15	7	6	4	3	-8	-6	-15	-7	-9	-14	-15			
18000	2	1	10	6	5	C	-1	-2	-1	-10	-6	-6	-11	-12			
BRIDGEHEAD	TC	TC	TC	TC	WESTOVER	WESTOVER	WESTOVER	TC	TC	TC	TC	WESTOVER	WESTOVER	WESTOVER			
5000	C	2	5	2	2	-2	-4	-1	-3	-6	-3	-4	-9	-10			
10000	-6	C	2	C	-1	-7	-8	2	-2	-3	-1	-2	-7	-8			
18000	-15	-12	0	-2	-1	-16	-18	7	6	-1	-1	1	-5	-6			
BRIDGEHEAD	TC	TC	TC	TC	MILLENSTADT	MILLENSTADT	MILLENSTADT	TC	TC	TC	TC	MILLENSTADT	MILLENSTADT	MILLENSTADT			
5000	14	12	14	12	12	5	8	-13	-11	-13	-11	-13	-16	-17			
10000	10	9	14	8	5	4	3	-9	-6	-14	-7	-9	-14	-16			
18000	2	1	11	7	5	C	-2	-2	-2	-11	-6	-6	-12	-14			
BRIDGEHEAD	TC	TC	TC	TC	CAIRO	CAIRO	CAIRO	TC	TC	TC	TC	CAIRO	CAIRO	CAIRO			
5000	7	6	7	5	6	C	-1	-8	-6	-7	-5	-7	-13	-14			
10000	10	11	12	8	10	3	1	-12	-12	-12	-9	-12	-19	-21			
18000	16	19	17	12	16	6	4	-24	-23	-18	-15	-20	-30	-32			
BRIDGEHEAD	TC	TC	TC	TC	CHATELAIN	CHATELAIN	CHATELAIN	TC	TC	TC	TC	CHATELAIN	CHATELAIN	CHATELAIN			
5000	-5	-5	-9	-5	-5	-15	-17	8	4	8	5	6	-1	-3			
10000	-13	-10	-12	-5	-12	-20	-22	12	6	12	8	10	1	0			
18000	-15	-14	-15	-17	-16	-25	-31	15	11	17	14	14	3	0			
BRIDGEHEAD	TC	TC	TC	TC	CHALMONT	CHALMONT	CHALMONT	TC	TC	TC	TC	CHALMONT	CHALMONT	CHALMONT			
5000	-5	-6	-9	-6	-6	-16	-18	7	5	9	5	6	-1	-3			
10000	-13	-5	-11	-8	-11	-20	-22	11	6	11	7	9	0	-1			
18000	-15	-13	-17	-16	-17	-26	-31	15	5	15	12	12	1	-1			

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN INDICATES HEADWINDS.

STANDARD DEVIATION

HEADINGS--COMPUTED FOR A 10-KT AIRSPEED.
 --GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 WINDS SIX DEGREES HEADWINDS.

EQUIVALENT MACHINES AND STAIRCASE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	WIND VELOCITY IN KNOTS												WIND DIRECTION												WIND GUSTS												WIND FORCE												WIND STATE																																						
	JAN				FEB				MAR				APR				MAY				JUN				JUL				AUG				SEPT				OCT				NOV				DEC				JAN				FEB				MAR				APR				MAY				JUN				JUL				AUG				SEPT				OCT		
0																																																																																							
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90																																																																																							
100																																																																																							
110																																																																																							
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160																																																																																							
170																																																																																							
180																																																																																							
190																																																																																							
200																																																																																							

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EQUIVALENT MEASURES AND STANDARD DEVIATION IN ROUTES FOR GREAT CIRCLE AIR ROUTES

PERIOD IN FLEET	JAN FEB MAR APR MAY JUN JUL OCT												STANDARD DEVIATION				
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	MAY	JUN	JUL	OCT	JAN	APR	MAY	JUN	OCT
CAIAC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SOCC	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8
LOCC	-12	-11	-12	-9	-12	-12	-12	-11	-12	-10	-11	-12	-12	-10	-11	-10	-12
BOCC	-21	-15	-18	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15
CAIPC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SOCC	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
LOCC	17	16	16	17	17	17	17	16	16	16	16	16	16	16	16	16	16
BOCC	25	27	28	11	17	17	17	27	27	27	27	27	27	27	27	27	27
CAIPC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SOCC	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
LOCC	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
BOCC	16	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAIPC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SOCC	-7	-8	-9	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8
LOCC	-11	-10	-11	-10	-11	-11	-11	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
BOCC	-20	-17	-17	-14	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17
CAIPC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SOCC	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
LOCC	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
BOCC	-10	-11	-12	-9	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11
CAIPC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SOCC	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
LOCC	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
BOCC	-10	-10	-14	-9	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11
CAIPC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SOCC	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
LOCC	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
BOCC	-10	-13	-13	-9	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11
CAIPC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SOCC	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
LOCC	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
BOCC	13	20	20	13	16	16	16	16	16	16	16	16	16	16	16	16	16
CAIPC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
SOCC	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
LOCC	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
BOCC	13	20	20	13	16	16	16	16	16	16	16	16	16	16	16	16	16

REMARKS:--COMPUTED FOR A 100-MT AIRSPEED.
--GREATS ANNUAL EQUIVALENT PLACED FOR INDICATED PER CENT RELIABILITIES.
--SICR GREATS MEASURES.

OPERATIONALS--COMPUTED FOR A 120-KT AIRSPEED.

***A--CANTES ANNUAL EQUIVALENT PEAKINGS FOR INDICATED PER CENT RELIABILITIES.**

***ALS SICA CANTES MEANINGS.**

EQUIVALENT HEADINGS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS												STANCARC DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	UCT	ASC	ATS	AB5	JAN	APR	JUL	UCT	ASC		ATS	AB5	
CAINE																
5000	-5	-6	-5	-5	-7	-12	-13	8	6	5	5	5	0	0	1667 N.MI.	
10000	-14	-13	-13	-10	-13	-15	-20	13	12	13	10	12	6	4	6	
18000	-25	-23	-15	-17	-21	-25	-31	21	20	18	15	18	10	8	7	
CAPE TOWN																
5000	-3	-4	-5	-3	-4	-5	-10	4	3	5	3	3	0	-1	1424 N.MI.	
10000	-2	-2	0	0	-2	-4	-6	2	1	0	0	0	-4	-5	6	
18000	1	2	3	0	1	-4	-6	-2	-4	-7	-3	-4	-11	-13	7	
CAPE TOWN																
5000	-1	2	2	2	0	-5	-6	2	-2	-3	-2	-1	-8	-9	686 N.MI.	
10000	5	6	8	6	7	0	-1	-9	-7	-10	-10	-9	-17	-19	9	
18000	10	11	15	10	11	1	0	-12	-15	-20	-15	-16	-26	-29	9	
CAPE TOWN																
5000	1	-1	-2	-2	-2	-5	-6	0	1	2	2	1	-2	-3	1784 N.MI.	
10000	-1	-3	-3	-3	-3	-7	-8	1	2	2	2	1	-2	-3	5	
18000	0	-1	-2	-4	-2	-8	-9	0	0	0	1	0	-5	-7	6	
CHABALACA																
5000	4	2	0	3	3	-3	-5	-9	-5	-3	-6	-7	-13	-15	1173 N.MI.	
10000	4	1	0	1	1	-6	-8	-8	-5	-4	-6	-6	-14	-16	10	
18000	-2	-1	-5	-5	-4	-14	-17	-10	-8	-6	-5	-8	-18	-21	10	
CHATELALCLX																
5000	3	2	5	4	3	-5	-8	-5	-3	-6	-5	-5	-15	-17	152 N.MI.	
10000	6	5	10	10	8	-2	-4	-9	-6	-11	-11	-10	-20	-22	14	
18000	6	7	16	14	11	-3	-7	-13	-11	-10	-18	-16	-30	-34	16	
CHATELALCLX																
5000	5	4	8	5	5	0	-1	-6	-5	-8	-5	-7	-12	-14	1767 N.MI.	
10000	12	5	10	8	5	3	1	-13	-10	-11	-9	-11	-18	-19	10	
18000	15	13	17	15	15	6	4	-19	-16	-19	-17	-10	-27	-29	10	
CHATELALCLX																
5000	1	2	5	4	3	-6	-8	-3	-3	-5	-5	-5	-14	-16	287 N.MI.	
10000	4	3	9	8	6	-3	-6	-7	-5	-10	-10	-9	-19	-21	14	
18000	3	5	14	12	5	-5	-9	-10	-9	-17	-17	-14	-28	-32	16	
CHATELALCLX																
5000	6	4	8	5	5	-1	-2	-6	-5	-8	-6	-7	-14	-16	1217 N.MI.	
10000	12	5	11	6	10	2	0	-13	-10	-12	-9	-12	-19	-21	12	
18000	14	11	18	15	14	4	2	-18	-14	-23	-18	-18	-28	-31	12	

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

***--LINES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADWINDS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWIND RETURN										STANCARE DEVIATION			
	DIRECT					RETURN					JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	WIND	JAN	APR	JUL	OCT	WIND	A85	A75	A85	A85
CHATEAUCARCLX	7	5	8	5	12MIR	-6	-5	-8	-6	-7	-14	-15	12	1225 N.MI.
5000	12	9	12	8		-13	-11	-12	-9	-12	-19	-21	12	9 0 9
10000	16	13	15	15		-19	-16	-20	-17	-19	-28	-31	17	12 9 11
16000													15	15 12 14
CHATEAUCARCLX	-6	-3	-3	-4	KEFLAVIK	5	2	2	1	2	-5	-7	13	1302 N.MI.
5000	-12	-6	-5	-6		8	3	3	3	4	-4	-6	14	12 9 12
10000	-15	-13	-9	-12		10	7	5	5	6	-5	-8	20	13 10 12
16000													20	10 14 18
CHATEAUCARCLX	-8	-2	-6	-9	LAPES FIELD	7	1	6	4	4	-3	-5	11	1349 N.MI.
5000	-12	-8	-10	-13		11	6	10	12	9	2	0	13	10 9 10
10000	-17	-13	-17	-19		12	9	15	16	13	3	0	17	12 9 10
16000													17	15 11 15
CHATEAUCARCLX	-1	-1	-1	0	LAS PALMAS	0	1	1	6	0	-5	-6	9	1393 N.MI.
5000	-2	-6	-7	-6		0	5	7	5	4	-1	-3	10	9 7 8
10000	-4	-5	-12	-10		0	6	11	7	6	-2	-5	14	10 7 9
16000													14	13 10 12
CHATEAUCARCLX	-1	0	-1	-2	LISECN	0	0	1	1	0	-7	-9	12	683 N.MI.
5000	-5	-6	-9	-9		2	5	8	7	5	-2	-4	14	12 10 12
10000	-7	-5	-15	-13		1	6	13	9	7	-3	-6	19	13 10 11
16000													19	17 13 17
CHATEAUCARCLX	5	5	8	4	LLQA, PALTA	-10	-5	-8	-4	-7	-14	-16	12	873 N.MI.
5000	11	6	11	7		-15	-5	-12	-8	-11	-19	-21	13	11 9 10
10000	15	9	12	10		-19	-13	-15	-14	-16	-26	-29	18	13 10 12
16000													18	16 12 15
CHATEAUCARCLX	6	6	7	5	LLXCR	-9	-6	-7	-5	-7	-12	-13	8	1989 N.MI.
5000	11	10	10	6		-12	-11	-11	-7	-11	-16	-18	9	7 6 7
10000	16	15	13	11		-21	-15	-15	-14	-17	-25	-27	13	5 7 8
16000													13	11 9 10
CHATEAUCARCLX	-6	-2	-2	-2	MILCENTALL	4	1	1	1	1	-7	-9	16	334 N.MI.
5000	-8	-3	0	-3		5	1	0	0	1	-8	-11	17	14 11 14
10000	-16	-6	-2	-6		9	1	-2	0	1	-13	-16	24	16 12 13
16000													24	22 17 22
CHATEAUCARCLX	5	3	6	7	MCSCHW	-7	-4	-6	-8	-7	-13	-15	11	1422 N.MI.
5000	7	5	8	10		-10	-6	-9	-11	-10	-17	-19	13	10 8 10
10000	6	7	14	13		-14	-11	-17	-18	-16	-26	-29	17	12 9 11
16000													17	16 13 16

HEADWINDS---COMPUTED FOR A 120-KT AIRSPEED.

WIND---EFFECTS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

STANDARD CEVIANIS

MECHINALS--COMPUTED FOR A 120-KT AIRSPEED.
 00A--CENCIES ANNUAL EQUIVALENT MECHINALS FOR INDICATED PER CENT RELIABILITIES.
 PIALS SIGA CENOTES MECHINALS.

EQUIVALENT HEADWINDS AND STANCAH DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

FLIGHT IN FEET	EQUVALENT HEADWINDS AND STANCAH DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES												STANCAH DEVIATION			
	EQUVALENT HEADWINDS AND STANCAH DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES												STANCAH DEVIATION			
	JAN	APR	JUL	OCT	0000	0000	0000	0000	0000	0000	0000	0000	JAN	APR	JUL	OCT
CHALPENT	TC	5	9	5	5	5	5	5	5	5	5	5	5	5	5	5
5000	6	5	12	8	10	10	10	10	10	10	10	10	10	10	10	10
10000	11	9	14	14	15	15	15	15	15	15	15	15	15	15	15	15
18000	16	14	18	14	15	15	15	15	15	15	15	15	15	15	15	15
CHALPENT	TC	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0
5000	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0
10000	0	-3	-4	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
18000	0	-6	-9	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6
CHALPENT	TC	0	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
5000	0	0	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
10000	-3	-5	-7	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6
18000	-4	-9	-13	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
CHALPENT	TC	-4	-6	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
5000	-10	-4	-6	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
10000	-13	-6	-6	-9	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
18000	-23	-12	-11	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15
CHALPENT	TC	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5
5000	1	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10000	4	3	9	8	8	8	8	8	8	8	8	8	8	8	8	8
18000	2	5	14	12	12	12	12	12	12	12	12	12	12	12	12	12
CHALPENT	TC	5	9	5	5	5	5	5	5	5	5	5	5	5	5	5
5000	7	5	9	5	5	5	5	5	5	5	5	5	5	5	5	5
10000	11	7	9	8	8	8	8	8	8	8	8	8	8	8	8	8
18000	14	7	10	10	10	10	10	10	10	10	10	10	10	10	10	10
CHALPENT	TC	2	4	5	5	5	5	5	5	5	5	5	5	5	5	5
5000	2	2	4	5	5	5	5	5	5	5	5	5	5	5	5	5
10000	2	2	5	5	5	5	5	5	5	5	5	5	5	5	5	5
18000	0	2	10	7	7	7	7	7	7	7	7	7	7	7	7	7
CHALPENT	TC	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5
5000	6	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10000	11	10	11	8	10	10	10	10	10	10	10	10	10	10	10	10
18000	16	15	17	13	15	15	15	15	15	15	15	15	15	15	15	15
CHALPENT	TC	0	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
5000	0	0	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
10000	-4	-5	-8	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
18000	-6	-8	-14	-12	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--LEASTS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCAE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	MAR	APR	JAN	APR	JUL	OCT	MAR	APR	JAN	APR	JUL	OCT
CHALPENT	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	1	1	3	4	4	4	-3	-2	-3	-5	-4	-10	11	10	1357 N.M.I.	
10000	1	1	3	3	1	-5	-3	-3	-5	-5	-5	-12	13	11	6	11
18000	-2	-2	5	4	1	-10	-6	-3	-9	-10	-8	-19	10	17	13	17
CHALPENT	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	7	4	7	3	5	-2	-8	-5	-7	-3	-6	-14	13	11	712 N.M.I.	
10000	7	4	7	3	5	-3	-10	-6	-8	-5	-8	-16	14	13	9	11
18000	11	3	3	4	4	-5	-16	-7	-8	-8	-10	-21	19	17	13	16
CHALPENT	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	1	0	0	0	0	-6	-2	-1	-1	0	-2	-10	14	13	440 N.M.I.	
10000	-2	-4	-7	-5	-5	-14	0	2	6	4	3	-6	16	15	11	13
18000	-5	-6	-11	-10	-6	-21	-3	2	8	6	3	-9	22	19	15	18
CHERRY PT PCAS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-12	-5	-4	-4	-7	-14	11	6	4	4	6	0	10	9	6	9
10000	-21	-17	-4	-7	-12	-21	20	16	4	6	10	3	10	10	17	10
18000	-35	-30	-2	-15	-22	-37	36	26	2	16	18	5	15	15	8	14
CHERRY PT PCAS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-12	-5	-4	-4	-7	-14	-5	-3	-2	-3	-4	-12	14	13	263 N.M.I.	
10000	-22	-18	-5	-6	-12	-22	-10	-10	-4	-5	-7	-17	16	16	10	14
18000	-40	-30	-6	-20	-22	-35	-26	-13	-5	-15	-14	-24	22	22	12	21
CHERRY PT PCAS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-12	-5	-4	-4	-7	-14	11	6	5	3	6	0	11	11	8	11
10000	-22	-18	-5	-6	-12	-22	20	17	5	6	11	2	13	13	8	12
18000	-40	-30	-6	-20	-22	-35	35	25	6	18	19	6	18	18	10	17
CHERRY PT PCAS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-12	-5	-4	-4	-7	-14	12	5	5	4	7	1	10	10	7	9
10000	-22	-18	-5	-6	-12	-22	22	17	5	7	11	3	11	11	7	11
18000	-41	-31	-5	-20	-22	-35	36	26	3	18	20	6	16	16	9	15
CHERRY PT PCAS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-12	-5	-4	-4	-7	-14	12	5	5	4	7	0	11	11	8	11
10000	-22	-18	-5	-6	-12	-22	23	18	6	7	12	4	12	12	8	12
18000	-43	-32	-6	-22	-22	-42	40	25	5	15	21	7	17	17	9	16
CHERRY PT PCAS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-12	-5	-4	-4	-7	-14	12	5	5	4	7	0	12	12	8	11
10000	-22	-18	-5	-6	-12	-22	23	18	6	7	12	4	14	14	9	13
18000	-43	-32	-6	-22	-22	-42	40	26	8	20	21	8	19	19	10	18

*HEADWINDS--COMPUTED FOR A 140-KT AIRSPEED.

**A--LENGTHS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN LENGTHS HEADWINDS.

EQUIVALENT HEADWINDS AND STANARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUILIBRIUM HEADWINDS										STANARC DEVIATION			
	DIRECT					RETURN								
	AN	APR	LL	CCT	DEC	ATZ	ABZ	JAN	APR	JUL	UCT	ASO	ATZ	ABZ
CHEFFA FT PCAS	TC													
5000	C	C	C	C	C	C	C	-4	-1	0	-1	-1	-10	-12
10000	-3	0	1	1	1	C	C	-4	-6	-2	-3	-4	-13	-16
18000	-2	-5	0	3	-1	-14	-17	-10	-7	-2	-11	-5	-23	-27
CHEFFA FT PCAS	TC													
5000	-5	-4	-4	-4	-4	-7	-15	11	5	5	4	7	0	-1
10000	-12	-10	-6	-6	-13	-23	-26	21	17	6	6	11	3	0
18000	-41	-30	-7	-21	-23	-40	-44	36	26	7	18	19	7	4
CHEFFA FT PCAS	TC													
5000	C	0	1	2	C	C	-6	-1	-1	-2	-3	-2	-8	-9
10000	C	C	0	1	C	C	-8	-5	-2	-2	-4	-4	-10	-12
18000	-1	-1	0	1	C	C	-10	-15	-6	-4	-10	-9	-18	-21
CHEFFA FT PCAS	TC													
5000	3	3	2	5	4	-4	-3	-8	-5	-6	-6	-7	-13	-15
10000	11	7	7	6	6	C	-1	-17	-11	-8	-11	-12	-23	-22
18000	15	5	5	15	12	2	0	-33	-16	-14	-23	-21	-34	-37
CHEFFA FT PCAS	TC													
5000	-2	-4	-4	-2	-4	-5	-10	3	3	4	2	3	-2	-3
10000	1	-3	-3	-3	-3	-5	-10	-3	1	3	2	0	-5	-7
18000	1	0	-2	-4	-2	-5	-11	-9	-7	2	2	-2	-11	-14
CHEFFA FT PCAS	TC													
5000	-2	-3	-1	0	-2	-7	-8	2	3	1	0	1	-3	-4
10000	-4	-6	-1	-2	-4	-5	-11	5	5	1	2	2	-1	-2
18000	-15	-12	-1	-8	-5	-17	-15	9	8	1	6	5	C	-2
CHEFFA FT PCAS	TC													
5000	7	14	10	12	12	4	3	-11	-8	-8	-8	-9	-16	-18
10000	17	14	10	12	12	4	3	-23	-17	-11	-14	-16	-25	-27
18000	25	18	14	22	15	6	6	-40	-26	-17	-28	-27	-40	-44
CHEFFA FT PCAS	TC													
5000	5	7	6	7	7	C	0	-11	-8	-8	-8	-9	-16	-18
10000	17	14	10	12	12	4	3	-23	-17	-11	-14	-16	-25	-27
18000	25	18	14	22	15	6	6	-40	-26	-17	-28	-27	-40	-44
CHEFFA FT PCAS	TC													
5000	-5	-5	-3	-2	-4	-10	-14	5	5	3	2	3	-2	-3
10000	-8	-8	-2	-4	-4	-13	-14	6	6	3	4	4	-1	-3
18000	-10	-12	-3	-9	-5	-15	-22	6	5	3	7	4	-3	-5
CHEFFA FT PCAS	TC													
5000	-6	-2	-3	-2	-4	-11	-14	5	5	3	2	3	-4	-4
10000	-8	-8	-3	-4	-4	-13	-15	5	5	3	3	3	-3	-5
18000	-10	-12	-4	-10	-10	-20	-23	4	5	3	7	4	-4	-7

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.
 -44--GREATEST ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 PLUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARDE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION			
	DIRECT					RETURN					JAN APR JUL OCT			
	JAN	APR	JUL	OCT	WINDS	WINDS	JAN	APR	JUL	OCT	WINDS	WINDS	WINDS	WINDS
CHEMUN FT PCAS	TC													
5000	-11	-4	-3	-3	-13	-17	10	6	4	3	6	-1	-3	274 N.MI.
10000	-21	-17	-5	-6	-22	-25	18	15	5	5	10	1	0	12
18000	-35	-21	-8	-20	-36	-42	31	22	7	17	17	5	2	14
														20
CHEMUN FT PCAS	TC													26
5000	-10	-4	-3	-3	-14	-16	9	7	4	3	5	-1	-3	361 N.MI.
10000	-16	-15	-4	-5	-20	-23	14	13	4	4	8	0	-2	11
18000	-33	-24	-6	-18	-34	-38	24	17	6	14	13	2	0	13
														19
CHEMUN FT PCAS	TC													17
5000	-6	-3	-3	-3	-11	-13	5	5	3	2	3	-2	-4	671 N.MI.
10000	-8	-3	-3	-4	-13	-15	6	6	3	3	4	-2	-4	10
18000	-17	-13	-4	-10	-21	-24	7	5	4	7	5	-3	-5	12
														16
CHEMUN FT PCAS	TC													14
5000	-11	-4	-3	-3	-11	-13	-12	-10	-4	-3	-7	-15	-17	628 N.MI.
10000	-22	-17	-5	-6	-22	-25	-24	-15	-7	-8	-14	-24	-27	12
18000	-36	-25	-8	-20	-36	-42	-40	-33	-10	-15	-24	-40	-43	14
														19
CHEMUN FT PCAS	TC													16
5000	-3	-4	-3	-3	-5	-10	2	3	3	2	2	-2	-4	1020 N.MI.
10000	-4	-4	-3	-3	-5	-10	-1	2	3	3	1	-4	-5	8
18000	-1	-1	-2	-5	-10	-12	-5	-4	2	3	0	-8	-11	5
														13
CHEMUN FT PCAS	TC													7
5000	-4	-4	-3	-3	-5	-10	-8	-6	-3	-5	-6	-14	-16	829 N.MI.
10000	-4	-4	-3	-3	-5	-10	-17	-13	-6	-10	-12	-21	-24	13
18000	-1	-1	-2	-5	-10	-12	-35	-20	-12	-23	-22	-30	-40	15
														20
CHEMUN FT PCAS	TC													12
5000	-4	-4	-3	-3	-5	-10	0	3	1	0	0	-3	-4	1456 N.MI.
10000	-4	-4	-3	-3	-5	-10	2	3	1	2	1	-3	-4	7
18000	-1	-1	-2	-5	-10	-12	2	2	1	4	2	-3	-5	8
														11
CHEMUN FT PCAS	TC													10
5000	-4	-4	-3	-3	-5	-10	-6	-4	-2	-3	-4	-12	-14	327 N.MI.
10000	-4	-4	-3	-3	-5	-10	-15	-12	-6	-6	-9	-14	-21	14
18000	-1	-1	-2	-5	-10	-12	-29	-16	-7	-18	-16	-22	-36	16
														22
CHEMUN FT PCAS	TC													12
5000	-4	-4	-3	-3	-5	-10	-1	-4	-2	-3	-4	-12	-14	1722 N.MI.
10000	-4	-4	-3	-3	-5	-10	-2	-2	-3	-2	-4	-12	-14	6
18000	-1	-1	-2	-5	-10	-12	-5	-3	-2	-2	-4	-12	-14	7
														10

*HEADWINDS--COMPUTED FOR A 10-KT WINDSPEED.

*WINDS--GROSS EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN INDICATES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

FEET IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION		
	JAN	APR	JUL	SEP	OCT	NOV	DEC	JAN	APR	JUL	SEP	OCT	JAN
CHEFFY FT PCAS	TC	5	6	7	8	9	10	11	12	13	14	15	16
5000	11	10	9	8	7	6	5	4	3	2	1	0	1001 N.M.I.
10000	15	14	13	12	11	10	9	8	7	6	5	4	1001 N.M.I.
CHEFFY FT PCAS	TC	5	6	7	8	9	10	11	12	13	14	15	16
5000	11	10	9	8	7	6	5	4	3	2	1	0	319 N.M.I.
10000	15	14	13	12	11	10	9	8	7	6	5	4	319 N.M.I.
CHEFFY FT PCAS	TC	5	6	7	8	9	10	11	12	13	14	15	16
5000	11	10	9	8	7	6	5	4	3	2	1	0	720 N.M.I.
10000	15	14	13	12	11	10	9	8	7	6	5	4	720 N.M.I.
CHEFFY FT PCAS	TC	5	6	7	8	9	10	11	12	13	14	15	16
5000	11	10	9	8	7	6	5	4	3	2	1	0	442 N.M.I.
10000	15	14	13	12	11	10	9	8	7	6	5	4	442 N.M.I.
CHEFFY FT PCAS	TC	5	6	7	8	9	10	11	12	13	14	15	16
5000	11	10	9	8	7	6	5	4	3	2	1	0	1000 N.M.I.
10000	15	14	13	12	11	10	9	8	7	6	5	4	1000 N.M.I.
CHEFFY FT PCAS	TC	5	6	7	8	9	10	11	12	13	14	15	16
5000	11	10	9	8	7	6	5	4	3	2	1	0	1113 N.M.I.
10000	15	14	13	12	11	10	9	8	7	6	5	4	1113 N.M.I.
CHEFFY FT PCAS	TC	5	6	7	8	9	10	11	12	13	14	15	16
5000	11	10	9	8	7	6	5	4	3	2	1	0	1549 N.M.I.
10000	15	14	13	12	11	10	9	8	7	6	5	4	1549 N.M.I.
CHEFFY FT PCAS	TC	5	6	7	8	9	10	11	12	13	14	15	16
5000	11	10	9	8	7	6	5	4	3	2	1	0	1435 N.M.I.
10000	15	14	13	12	11	10	9	8	7	6	5	4	1435 N.M.I.
CHEFFY FT PCAS	TC	5	6	7	8	9	10	11	12	13	14	15	16
5000	11	10	9	8	7	6	5	4	3	2	1	0	1050 N.M.I.
10000	15	14	13	12	11	10	9	8	7	6	5	4	1050 N.M.I.

HEADWINDS--COMPUTED FOR A 10-KNOT WINDSPEED.

***--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN LEAVES HEADWINDS.

SHEET 100

EQUIVALENT HEADLINES AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADLINES										STANDARD DEVIATION			
	DIRECT					RETURN					JAN APR JUL OCT			
	JAN	APR	JUL	OCT	APR	JAN	APR	JUL	OCT	APR	JAN	APR	JUL	OCT
CORPUS CHRISTI	TC													
5000	11	8	4	4	FCPT CRAC/PCPE									
10000	20	16	4	6	10	2	1							
18000	36	20	1	10	18	4	2							
CORPUS CHRISTI	TC													
5000	11	8	5	4	FCPT ELSTIS									
10000	21	16	5	7	11	3	2							
18000	36	24	3	17	18	6	3							
CORPUS CHRISTI	TC													
5000	5	7	3	3	FCPT MLCREF									
10000	16	14	1	5	8	1	1							
18000	32	26	-2	14	16	2	0							
CORPUS CHRISTI	TC													
5000	-5	-2	-6	-4	GLANTANPC EAY									
10000	4	2	-6	6	-1	-5	-11							
18000	14	16	-5	3	6	-3	-5							
CORPUS CHRISTI	TC													
5000	-6	-7	-7	-2	GLATAMALA CITY									
10000	-3	-2	-6	-3	-4	-5	-10							
18000	-2	1	-5	-2	-3	-5	-10							
CORPUS CHRISTI	TC													
5000	-5	0	-5	-3	MAVANA									
10000	5	5	-4	1	1	-5	-6							
18000	12	15	-4	6	8	-2	-4							
CORPUS CHRISTI	TC													
5000	2	2	-1	0	MCNESTAL AFE									
10000	5	8	-2	3	4	-2	-4							
18000	24	24	-3	9	12	3	-2							
CORPUS CHRISTI	TC													
5000	5	8	3	3	MCNESTAL AFE									
10000	12	15	2	5	5	1	0							
18000	34	26	0	15	17	3	0							
CORPUS CHRISTI	TC													
5000	6	7	2	3	JACKSONVILLE									
10000	17	15	1	5	8	1	0							
18000	35	26	-1	14	17	2	0							

*HEADLINES--COMPUTED FOR A 120-KT AIRSPEED.

**--LINES ANNUAL EQUIVALENT HEADLINES FOR INDICATED PER CENT RELIABILITIES.

WINDS SUCH AS KNOTS HEADLINES.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT
COMPLS CHARTS	TC	TC	KEY WEST	KEY WEST	KEY WEST	KEY WEST	TC	TC	KEY WEST	KEY WEST	KEY WEST	KEY WEST	TC	TC	KEY WEST	KEY WEST
5000	1	1	-1	-1	-2	-2	0	-1	3	1	0	-5	10	9	9	8
10000	6	7	-3	2	2	-3	-8	-7	3	-2	-3	-10	9	9	7	8
15000	22	21	-4	8	11	0	-24	-22	4	-5	-13	-25	13	12	7	11
COMPLS CHARTS	TC	TC	KINGSTON	KINGSTON	KINGSTON	KINGSTON	TC	TC	KINGSTON	KINGSTON	KINGSTON	KINGSTON	TC	TC	KINGSTON	KINGSTON
5000	8	3	3	3	5	5	-9	-5	-3	-3	-6	-12	0	0	0	0
10000	16	10	6	10	10	2	-15	-17	-4	-6	-11	-19	9	5	6	8
15000	33	26	3	15	15	4	-30	-30	-3	-17	-22	-34	13	12	7	11
COMPLS CHARTS	TC	TC	KINGSTON	KINGSTON	KINGSTON	KINGSTON	TC	TC	KINGSTON	KINGSTON	KINGSTON	KINGSTON	TC	TC	KINGSTON	KINGSTON
5000	-5	-4	-8	-5	-6	-11	5	3	8	5	5	0	0	7	5	7
10000	0	0	-8	-2	-3	-6	-1	-1	8	2	1	-4	0	7	5	7
15000	10	13	-5	2	3	-4	-13	-14	5	-2	-5	-15	11	10	6	9
COMPLS CHARTS	TC	TC	LCMING AFB	LCMING AFB	LCMING AFB	LCMING AFB	TC	TC	LCMING AFB	LCMING AFB	LCMING AFB	LCMING AFB	TC	TC	LCMING AFB	LCMING AFB
5000	10	7	6	6	7	1	-12	-6	-6	-7	-9	-14	9	5	6	8
10000	15	13	6	10	12	5	-23	-15	-5	-11	-14	-22	10	10	7	9
15000	31	18	8	18	17	7	-40	-25	-12	-24	-24	-37	15	14	8	14
COMPLS CHARTS	TC	TC	MANAGUA	MANAGUA	MANAGUA	MANAGUA	TC	TC	MANAGUA	MANAGUA	MANAGUA	MANAGUA	TC	TC	MANAGUA	MANAGUA
5000	-5	-7	-7	-2	-6	-11	5	6	8	2	5	0	0	7	5	7
10000	-2	-2	-7	-3	-4	-5	-2	2	7	4	4	0	7	7	5	6
15000	-1	2	-8	-2	-3	-6	-1	-5	6	2	0	-6	11	9	6	8
COMPLS CHARTS	TC	TC	MCQUEEN AFB	MCQUEEN AFB	MCQUEEN AFB	MCQUEEN AFB	TC	TC	MCQUEEN AFB	MCQUEEN AFB	MCQUEEN AFB	MCQUEEN AFB	TC	TC	MCQUEEN AFB	MCQUEEN AFB
5000	10	6	5	5	7	1	-12	-5	-5	-5	-8	-14	10	10	6	8
10000	21	16	6	8	11	4	-24	-17	-7	-5	-14	-22	11	11	7	10
15000	35	23	5	17	16	6	-42	-25	-6	-21	-24	-38	15	15	8	14
COMPLS CHARTS	TC	TC	MEDELLIN	MEDELLIN	MEDELLIN	MEDELLIN	TC	TC	MEDELLIN	MEDELLIN	MEDELLIN	MEDELLIN	TC	TC	MEDELLIN	MEDELLIN
5000	-2	-7	-6	-3	-5	-5	3	7	6	3	4	1	0	0	5	5
10000	-4	-3	-10	-4	-5	-10	4	3	10	4	4	0	0	0	5	5
15000	0	2	-7	-2	-2	-7	-2	-4	7	2	3	-5	0	0	5	6
COMPLS CHARTS	TC	TC	NEW GUINEA	NEW GUINEA	NEW GUINEA	NEW GUINEA	TC	TC	NEW GUINEA	NEW GUINEA	NEW GUINEA	NEW GUINEA	TC	TC	NEW GUINEA	NEW GUINEA
5000	11	8	5	5	7	0	-12	-5	-5	-5	-8	-14	10	10	7	9
10000	20	15	6	7	11	3	-23	-17	-5	-5	-13	-22	11	11	8	10
15000	34	24	4	16	17	3	-41	-26	-6	-21	-23	-38	16	15	9	15
COMPLS CHARTS	TC	TC	NEW ORLEANS	NEW ORLEANS	NEW ORLEANS	NEW ORLEANS	TC	TC	NEW ORLEANS	NEW ORLEANS	NEW ORLEANS	NEW ORLEANS	TC	TC	NEW ORLEANS	NEW ORLEANS
5000	5	7	5	5	5	-1	-9	-7	-3	-3	-6	-13	12	11	7	10
10000	17	13	5	5	6	0	-17	-12	0	-5	-9	-18	11	11	8	10
15000	32	25	-3	13	15	0	-34	-27	3	-14	-18	-33	17	16	9	15

HEADWINDS—COMPUTED FOR A 120-KT AIRSPEED.

**—LARGEST ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

+—LARGEST SIGN INDICATES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADINGS												STANDARD DEVIATION			
	DIRECT						RETURN						JAN	APR	JUL	CCY
	JAN	APR	JUL	SEPT	NOV	DEC	JAN	APR	JUL	SEPT	NOV	DEC	JAN	APR	JUL	CCY
COMFLS CAPSIST	TC															
5000	4	5	1	2	2	-2	-4	-4	-1	-2	-4	-9	-11	10	5	804 N.M.I.
10000	14	11	6	4	4	-1	-14	-12	0	-4	-7	-15	-17	10	10	6 9
15000	25	25	-1	12	15	2	-31	-26	1	-13	-17	-30	-34	14	14	7 9
COMFLS CAPSIST	TC															
5000	-2	-2	-7	-4	-2	-10	-11	5	2	5	5	0	0	7	7	1477 N.M.I.
10000	1	1	-7	-1	-2	-7	-8	-2	-2	7	1	-4	-6	7	7	5 6
15000	15	15	-5	2	5	-3	-5	-15	-16	5	-3	-7	-19	10	10	6 8
COMFLS CAPSIST	TC															
5000	-2	-2	-7	-5	-2	-5	-10	4	2	7	5	4	0	7	6	1748 N.M.I.
10000	4	4	-6	-1	-1	-6	-7	-3	-2	7	1	0	-6	7	7	4 6
15000	15	15	-4	2	5	-3	-4	-10	-17	5	-3	-8	-20	10	9	5 8
COMFLS CAPSIST	TC															
5000	-2	-2	-7	-1	-1	-6	-7	4	7	7	1	5	0	7	7	1300 N.M.I.
10000	-4	-4	-7	-3	-4	-6	-9	2	2	7	4	3	-1	7	6	4 6
15000	-1	2	-6	-2	-3	-6	-9	-1	-4	6	2	1	-5	10	9	5 8
COMFLS CAPSIST	TC															
5000	-6	-6	-7	-2	-6	-11	-12	5	6	8	2	5	0	8	8	957 N.M.I.
10000	-3	-2	-6	-3	-4	-9	-10	2	2	6	3	3	-1	8	7	5 7
15000	-2	2	-5	-2	-3	-6	-10	-1	-4	0	2	1	-6	11	10	6 9
COMFLS CAPSIST	TC															
5000	-3	-3	-7	-5	-6	-10	-11	4	2	7	5	4	0	7	6	1605 N.M.I.
10000	1	2	-7	-1	-2	-7	-8	-2	-2	7	1	0	-6	7	7	5 6
15000	15	15	-5	2	5	-3	-5	-15	-16	5	-3	-7	-19	10	5	5 8
COMFLS CAPSIST	TC															
5000	8	8	4	4	6	5	-1	-11	-5	-4	-4	-7	-14	10	10	942 N.M.I.
10000	20	20	3	6	10	2	6	-21	-22	-3	-6	-11	-23	11	11	7 10
15000	25	25	6	15	17	3	3	-30	-25	-1	-10	-21	-39	16	15	8 14
COMFLS CAPSIST	TC															
5000	-7	-7	-8	-3	-7	-11	-15	6	7	9	3	0	0	8	8	993 N.M.I.
10000	-2	-2	-7	-5	-4	-9	-10	2	2	7	4	3	-2	8	7	5 7
15000	5	5	-6	-2	-2	-6	-10	-2	-6	0	1	0	-7	11	10	6 9
COMFLS CAPSIST	TC															
5000	6	6	6	5	10	1	6	-13	-5	-8	-6	-9	-15	10	10	1487 N.M.I.
10000	21	21	7	6	12	3	3	-24	-17	-8	-10	-15	-25	10	10	6 8
15000	25	25	6	10	16	7	7	-42	-26	-8	-22	-24	-38	15	15	7 14

HEADINGS ARE GIVEN FOR A 120-KT AIRSPEED.
STANDARD DEVIATION HEADINGS FOR INDICATED PER CENT RELIABILITIES.
VALUES IN BRACKETS HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*												STANDARD DEVIATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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	JAN	APR	JUL	OCT	MAR	APR	JAN	APR	JUL	OCT	MAR	APR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										

* HEADWINDS--COMPUTED FOR A 10-KNOT AIRSPEED.
**--VALUES ARE EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION			
	DIRECT					RETURN					JAN APR JUL OCT			
	JAN	APR	JUL	OCT	0000	0000	0000	0000	0000	0000	JAN	APR	JUL	OCT
CHAPMAN														
5000	0	2	-5	3	0	-5	-6							
10000	-5	-5	4	0	-2	-5	-10							
15000	-15	-12	5	-4	-7	-17	-19							
CHAPMAN														
5000	-8	-7	-6	-4	-7	-11	-12							
10000	-16	-16	-5	-5	-13	-16	-20							
15000	-31	-25	-14	-10	-22	-31	-34							
CHAPMAN														
5000	-2	-7	-7	0	-5	-11	-12							
10000	-16	-14	-2	-3	-5	-16	-10							
15000	-25	-24	-2	-10	-15	-27	-30							
CHAPMAN														
5000	-1	0	-5	-2	-3	-6	-9							
10000	-3	-2	-3	-4	-4	-9	-11							
15000	-12	-6	-3	-5	-7	-15	-17							
CHAPMAN														
5000	6	2	-2	5	3	-1	-2							
10000	3	5	1	5	3	0	-1							
15000	-7	0	7	0	0	-5	-7							
CHAPMAN														
5000	-7	-7	-8	-5	-7	-12	-15							
10000	-15	-14	-10	-8	-12	-16	-19							
15000	-27	-25	-17	-15	-21	-25	-31							
CHAPMAN														
5000	-2	-7	-10	-5	-6	-13	-14							
10000	-16	-15	-8	-7	-12	-15	-20							
15000	-30	-27	-15	-13	-20	-31	-33							
CHAPMAN														
5000	0	0	-7	-1	-3	-6	-10							
10000	3	0	-5	-2	-1	-6	-10							
15000	-2	-1	0	7	0	-6	-10							
CHAPMAN														
5000	-1	-6	-10	-5	-6	-13	-14							
10000	-17	-16	-7	-7	-12	-15	-20							
15000	-32	-28	-14	-10	-20	-31	-33							

HEADWINDS—COMPUTED FOR A 120-KT AIRSPEED.

STANDARD DEVIATION—ARITHMETIC EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

PLANS SHEET 210-10600-2

EQUIVALENT HEADLINES AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUILIBRIUM AT MEADLANDS												STANDARD DEVIATION			
	WIND						RETURN						JAN APR JUL OCT			
	00A	00A	00A	00A	00A	00A	00A	00A	00A	00A	00A	00A	00A	00A	00A	00A
	APR	JUL	CCT	00A	00A	00A	JAN	APR	JUL	OCT	00A	00A	00A	00A	00A	00A
CHAPMAN																
5000	5	7	1	2	3	3	-5	-7	-2	-1	-4	-10	-11	0	0	600 N.M.I.
10000	17	14	0	3	6	6	-17	-14	0	-3	-9	-17	-19	9	0	7
10000	34	27	1	14	17	5	-37	-25	-1	-14	-19	-34	-37	15	9	10
CIVILIZATION																
5000	-6	-5	-9	-6	-7	-13	5	4	0	6	5	6	-1	10	0	1579 N.M.I.
10000	-13	-5	-5	-5	-10	-17	11	6	9	8	9	2	0	11	0	8
10000	-15	-14	-17	-17	-26	-25	14	11	15	14	13	4	2	15	14	11 14
CIVILIZATION																
5000	-5	-6	-7	-5	-6	-13	4	5	7	5	5	-1	-3	12	0	557 N.M.I.
10000	-15	-12	-11	-5	-12	-22	14	11	10	9	10	2	0	13	10	10
10000	-22	-22	-19	-10	-21	-31	19	20	18	16	18	7	4	18	17	13 16
CIVILIZATION																
5000	-6	-6	-5	-4	-6	-12	5	6	4	4	4	-1	-3	12	0	415 N.M.I.
10000	-16	-14	-11	-10	-13	-21	15	13	11	10	12	4	2	12	10	9
10000	-25	-24	-18	-19	-22	-32	22	22	17	17	19	8	6	18	16	13 15
CIVILIZATION																
5000	4	0	7	2	4	0	-4	-6	-7	-2	-5	-5	-10	6	6	1577 N.M.I.
10000	11	5	5	6	7	2	-12	-10	-5	-7	-9	-14	-15	7	0	5
10000	27	23	9	13	16	5	-32	-26	-10	-14	-20	-30	-33	12	11	7 9
CIVILIZATION																
5000	2	3	2	3	4	-1	-3	-3	-3	-3	-4	-8	-9	7	6	1398 N.M.I.
10000	-4	-1	2	-4	-2	-8	2	0	-2	3	0	-4	-6	0	0	6
10000	-11	-6	3	-9	-6	-14	5	1	-4	7	1	-5	-7	13	11	7 9
CIVILIZATION																
5000	-1	-6	-1	-4	-5	-11	0	5	1	4	3	-1	-3	10	0	1236 N.M.I.
10000	-16	-14	-10	-10	-13	-20	15	13	9	10	11	4	3	11	11	0
10000	-22	-25	-16	-19	-22	-31	22	22	16	17	15	10	8	16	14	10 12
CIVILIZATION																
5000	-6	-1	4	2	0	-6	1	0	-5	-2	-2	-7	-8	9	0	882 N.M.I.
10000	-7	-0	-2	-7	-6	-12	5	4	1	6	3	-2	-4	10	10	7
10000	-17	-12	-1	-12	-10	-20	8	5	5	10	5	-3	-5	16	14	10 11
CIVILIZATION																
5000	-7	-5	-5	-7	-6	-13	0	4	0	6	0	0	-1	10	0	1860 N.M.I.
10000	-12	-5	-5	-10	-10	-17	11	6	9	9	9	2	1	11	10	0
10000	-15	-14	-17	-17	-26	-26	15	10	15	14	13	4	2	15	14	11 13

HEADLINES--COMPUTED FOR A 120-KT AIRSPEED.

00A--EQUATES ANNUAL EQUIVALENT HEADLINES PL. INDICATED PER CENT RELIABILITIES.
PL. SILENT HEADLINES.

EQUIVALENT HEADINGS AND STANCARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUILIBRIUM HEADINGS												STANDARD DEVIATION			
	DIRECT						RETURN						JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	WASC	WASC	JAN	APR	JUL	OCT	WASC	WASC				
LIYAFERKIF 5000 10000 18000	TUNIS												10	8	1424 N.M.I.	
	-1	-5	-2	-4	-5	-10	-12	6	5	2	4	4	-1	-2	8	6
	-15	-14	-10	-10	-13	-15	-21	14	13	9	9	11	4	3	10	8
LIYAFERKIF 5000 10000 18000	ZAMEAN												15	13	10	12
	4	6	6	3	4	6	0	-4	-6	-6	-3	-5	-10	-11	7	6
	12	10	10	10	13	15	1	-13	-11	-6	-9	-10	-16	-18	9	8
LIYAFERKIF 5000 10000 18000	ZARAGGZA												14	12	9	10
	27	24	12	14	18	10	8	-31	-27	-13	-16	-21	-31	-34	14	12
ECVER AFE	EGLIN AFB												9	8	1853 N.M.I.	
	-11	-8	-4	-4	-7	-14	-16	10	7	4	4	6	0	-2	11	11
	-22	-17	-6	-7	-13	-22	-25	18	14	6	6	10	2	0	13	13
ECVER AFE	ELLINGTON AFB												18	18	10	17
	-40	-26	-8	-21	-22	-36	-42	31	15	7	17	16	5	3	18	18
ECVER AFE	ENGLAND AFB												11	11	1127 N.M.I.	
	-13	-5	-5	-5	-8	-15	-17	12	9	5	5	7	1	0	11	10
	-24	-18	-7	-9	-14	-23	-26	22	17	7	8	12	5	3	11	11
ECVER AFE	FORT BERNING												16	16	9	15
	-45	-30	-7	-22	-25	-40	-43	37	24	5	18	19	7	4	16	16
ECVER AFE	FORT BERNING												11	11	957 N.M.I.	
	-13	-10	-5	-5	-8	-15	-17	12	9	5	5	7	0	0	11	10
	-26	-15	-8	-9	-15	-25	-27	23	17	6	6	13	5	3	12	12
ECVER AFE	FORT BERNING												18	18	10	16
	-45	-30	-7	-24	-28	-41	-45	39	25	7	20	20	8	5	17	17
ECVER AFE	FORT BERNING												12	12	605 N.M.I.	
	-14	-9	-4	-5	-8	-15	-17	11	8	4	4	6	0	-2	12	11
	-23	-18	-7	-8	-14	-24	-27	19	15	7	7	11	2	0	14	14
ECVER AFE	FORT BERNING												19	19	11	18
	-43	-28	-10	-23	-25	-41	-45	34	20	9	19	18	6	4	19	19
ECVER AFE	FORT BERNING												14	14	292 N.M.I.	
	-5	-7	-4	-5	-8	-15	-17	7	5	3	4	4	-3	-5	14	13
	-15	-16	-7	-8	-12	-23	-25	13	12	6	6	8	0	-2	16	16
ECVER AFE	FORT BERNING												22	22	12	21
	-38	-23	-10	-22	-22	-38	-42	23	12	8	16	13	1	-1	22	22
ECVER AFE	FORT BERNING												12	12	680 N.M.I.	
	-14	-8	-4	-4	-7	-14	-16	10	7	4	4	6	-1	-2	12	11
	-24	-17	-7	-7	-13	-23	-25	18	14	6	6	10	2	0	13	13
ECVER AFE	FORT BERNING												19	19	10	18
	-40	-26	-8	-22	-22	-38	-42	31	15	7	17	16	5	2	19	19

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.
***--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
PLAS SIGN LEAKES HEADINGS.

EQUIVALENT HEADWINDS AND STANGARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADWINDS IN KNOTS FOR GREAT CIRCLE AIR ROUTES										STANGARC DEVIATION			
	DIRECT					RETURN					JAN APR JUL OCT			
	JAN	APR	JUL	OCT	STANGARC	AT5	AB5	JAN	APR	JUL	OCT	STANGARC	AT5	AB5
DLVER AFE	TC	TC	TC	TC	FACEISPER			-1	-1	-2	-3			
5000	C	C	1	2	C	-6	-7	-5	-5	-2	-3			
10000	C	C	0	1	C	-6	-8	-5	-1	-2	-4			
15000	C	C	-1	0	C	-5	-12	-14	-5	-3	-5			
DLVER AFE	TC	TC	TC	TC	GOOSE AP			-8	-5	-7	-8			
5000	C	3	6	6	C	-2	-4	-16	-10	-9	-13			
10000	C	7	7	10	C	-1	-1	-33	-16	-16	-25			
15000	C	10	11	17	C	3	C							
DLVER AFE	TC	TC	TC	TC	GLANTANAPC RAY			2	2	3	2			
5000	C	-3	-3	-2	C	-5	-10	-3	2	2	2			
10000	C	-5	-2	-3	C	-5	-11	-3	2	2	2			
15000	C	-2	-2	-6	C	-4	-14	-7	-5	2	3			
DLVER AFE	TC	TC	TC	TC	GLATAPALA CITY			3	3	2	0			
5000	C	-4	-2	-1	C	-2	-9	6	6	2	3			
10000	C	-8	-2	-3	C	-11	-12	11	7	2	7			
15000	C	-13	-2	-10	C	-11	-22							
DLVER AFE	TC	TC	TC	TC	HAMPDEN AFE			-12	-8	-9	-9			
5000	C	7	9	8	C	1	0	-25	-17	-13	-17			
10000	C	14	12	15	C	6	3	-42	-26	-21	-31			
15000	C	15	18	25	C	10	7							
DLVER AFE	TC	TC	TC	TC	HAVANA			4	4	3	2			
5000	C	-5	-3	-2	C	-4	-10	5	6	3	4			
10000	C	-5	-3	-4	C	-6	-13	7	4	3	7			
15000	C	-13	-4	-11	C	-11	-24							
DLVER AFE	TC	TC	TC	TC	HOMESTEAL AFE			4	4	3	2			
5000	C	-5	-3	-2	C	-4	-11	4	4	3	3			
10000	C	-5	-3	-4	C	-6	-14	4	4	3	3			
15000	C	-12	-4	-12	C	-11	-22	5	3	3	7			
DLVER AFE	TC	TC	TC	TC	HUNTER AFE			7	5	3	3			
5000	C	-5	-3	-3	C	-6	-13	14	11	5	5			
10000	C	-14	-6	-8	C	-11	-20	21	12	7	14			
15000	C	-22	-8	-19	C	-20	-35							
DLVER AFE	TC	TC	TC	TC	JACKSONVILLE			7	5	3	2			
5000	C	-6	-3	-3	C	-6	-13	11	10	4	4			
10000	C	-14	-5	-6	C	-10	-21	16	10	6	12			
15000	C	-20	-7	-18	C	-16	-32							

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**--CENCIES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

PLACES SIGN CENCIES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN ANOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADWINDS										STANDARD DEVIATION			
	DIRECT					RETURN								
	JAN	APR	JUL	CCT	WINDS	JAN	APR	JUL	CCT	WINDS	JAN	APR	JUL	CCT
CLVER AFE	TC	TC	TC	TC	KEY WEST	TC	TC	TC	TC	KEY WEST	TC	TC	TC	TC
	-6	-5	-3	-3	-5	-5	4	3	2	3	-2	-4	10	10
	-10	-9	-3	-4	-7	5	6	3	4	4	-2	-3	12	11
CLVER AFE	TC	TC	TC	TC	KINGSTON	TC	TC	TC	TC	KINGSTON	TC	TC	TC	TC
	-21	-13	-4	-12	-12	8	4	4	8	5	-3	-5	16	16
CLVER AFE	TC	TC	TC	TC	KINGSTON	TC	TC	TC	TC	KINGSTON	TC	TC	TC	TC
	10	7	3	2	5	-11	-5	-3	-3	-7	-15	-17	13	12
	20	12	6	7	10	-24	-16	-7	-8	-13	-24	-26	15	14
CLVER AFE	TC	TC	TC	TC	KINGSTON	TC	TC	TC	TC	KINGSTON	TC	TC	TC	TC
	28	23	5	11	16	-38	-30	-11	-17	-22	-38	-42	20	15
CLVER AFE	TC	TC	TC	TC	LORING AFE	TC	TC	TC	TC	LORING AFE	TC	TC	TC	TC
	-5	-3	-3	-2	-3	1	2	3	1	2	-3	-4	9	8
	-1	-5	-3	-3	-4	-2	3	2	3	1	-4	-5	10	5
CLVER AFE	TC	TC	TC	TC	LORING AFE	TC	TC	TC	TC	LORING AFE	TC	TC	TC	TC
	-5	-3	-2	-7	-5	-4	-3	2	4	0	-8	-10	13	13
CLVER AFE	TC	TC	TC	TC	MANAGUA	TC	TC	TC	TC	MANAGUA	TC	TC	TC	TC
	6	4	6	6	5	-5	-6	-6	-7	-7	-16	-18	14	14
	12	5	6	10	5	-20	-13	-10	-13	-14	-24	-27	16	16
CLVER AFE	TC	TC	TC	TC	MANAGUA	TC	TC	TC	TC	MANAGUA	TC	TC	TC	TC
	24	11	11	18	15	-37	-21	-16	-26	-24	-39	-43	22	22
CLVER AFE	TC	TC	TC	TC	MEDELLIN	TC	TC	TC	TC	MEDELLIN	TC	TC	TC	TC
	-2	-2	-1	0	-2	0	3	1	0	1	-3	-4	7	7
	-6	-6	-2	-3	-4	3	4	1	2	2	-2	-3	8	8
CLVER AFE	TC	TC	TC	TC	MEDELLIN	TC	TC	TC	TC	MEDELLIN	TC	TC	TC	TC
	-12	-8	-2	-8	-1	3	2	2	5	2	-3	-4	11	11
CLVER AFE	TC	TC	TC	TC	MARSA MATRUH	TC	TC	TC	TC	MARSA MATRUH	TC	TC	TC	TC
	0	-3	-2	-1	-2	-1	3	2	1	1	-2	-3	6	6
	0	-3	-3	-2	-2	-2	2	2	2	0	-3	-4	7	7
CLVER AFE	TC	TC	TC	TC	MARSA MATRUH	TC	TC	TC	TC	MARSA MATRUH	TC	TC	TC	TC
	-1	0	-2	-4	-2	-3	-4	1	2	-1	-7	-9	10	5
CLVER AFE	TC	TC	TC	TC	NEW ORLEANS	TC	TC	TC	TC	NEW ORLEANS	TC	TC	TC	TC
	0	2	5	6	4	-1	-4	-6	-8	-7	-13	-15	10	10
	11	5	7	9	7	-16	-8	-9	-12	-12	-19	-21	12	11
CLVER AFE	TC	TC	TC	TC	NEW ORLEANS	TC	TC	TC	TC	NEW ORLEANS	TC	TC	TC	TC
	20	10	10	15	13	-29	-16	-14	-23	-20	-31	-34	16	16
CLVER AFE	TC	TC	TC	TC	PATRIK AFE	TC	TC	TC	TC	PATRIK AFE	TC	TC	TC	TC
	-12	-9	-4	-5	-8	11	8	5	4	6	0	-1	11	11
	-23	-16	-7	-8	-14	20	16	7	7	11	4	2	12	12
CLVER AFE	TC	TC	TC	TC	PATRIK AFE	TC	TC	TC	TC	PATRIK AFE	TC	TC	TC	TC
	-42	-28	-7	-22	-24	35	22	6	18	16	6	4	17	17
CLVER AFE	TC	TC	TC	TC	701 A. PI.	TC	TC	TC	TC	701 A. PI.	TC	TC	TC	TC
	-7	-5	-3	-2	-5	5	4	3	2	3	-3	-4	11	11
	-12	-11	-4	-4	-6	6	7	3	3	4	-3	-4	13	13
CLVER AFE	TC	TC	TC	TC	701 A. PI.	TC	TC	TC	TC	701 A. PI.	TC	TC	TC	TC
	-25	-15	-5	-24	-14	10	5	4	9	6	-3	-5	18	18

HEADWINDS--COMPUTED FOR A 100-KT AIRSPEED.

WINDS--INDICATES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN INDICATES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADWINDS IN KNOTS FOR GREAT CIRCLE AIR ROUTES												STANCARE DEVIATION				
	DIRECT						RETURN						JAN APR JUL OCT				
	JAN	APR	JUL	OCT	WIND	ANGLE	JAN	APR	JUL	OCT	WIND	ANGLE					
LOWEST AFE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	
	5000	-2	-3	-3	-2	-2	-10	1	2	3	2	2	-3	9	8	6	8
	10000	2	-4	-2	-2	-2	-10	-5	1	2	2	0	-6	10	10	7	9
15000	6	1	-2	-5	-2	-11	-10	-6	1	1	1	-3	14	13	7	12	
LOWEST AFE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	
	5000	-1	-2	-4	-2	-2	-5	0	1	4	2	2	-3	9	8	6	8
	10000	5	-2	-2	-1	-1	-8	-8	0	2	1	-1	-8	10	10	7	9
15000	7	6	-1	-3	0	-8	-16	-13	3	0	0	-16	14	13	7	11	
LOWEST AFE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	
	5000	0	-4	-1	0	-2	-7	0	3	1	0	0	-3	7	7	5	6
	10000	-4	-5	-1	-3	-4	-10	1	3	1	2	1	-2	8	8	5	7
15000	-5	-5	-2	-7	-6	-14	0	0	1	1	4	-6	10	10	6	9	
LOWEST AFE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	
	5000	-3	-3	-1	0	-2	-8	2	3	1	0	1	-2	7	7	5	6
	10000	-6	-7	-2	-3	-5	-12	5	5	1	2	2	-1	8	8	5	7
15000	-11	-12	-2	-5	-10	-16	9	6	2	2	6	-5	11	11	6	10	
LOWEST AFE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	
	5000	-2	-3	-4	-2	-2	-10	1	2	3	2	2	-3	9	8	6	8
	10000	3	-3	-2	-2	-1	-5	-7	0	2	1	0	-7	10	10	7	9
15000	3	3	-1	-4	0	-5	-13	-10	1	0	0	-14	14	13	7	11	
LOWEST AFE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	
	5000	-10	-7	-3	-4	-6	-14	8	6	3	4	5	-2	13	12	9	12
	10000	-20	-16	-7	-8	-13	-23	14	13	0	6	9	0	15	15	10	14
15000	-35	-24	-10	-22	-22	-36	26	15	6	16	15	2	21	21	12	20	
LOWEST AFE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	
	5000	0	1	2	4	-2	-2	-4	-2	-3	-5	-4	-10	9	9	7	8
	10000	0	2	3	5	-2	-4	-10	-4	-5	-7	-7	-14	11	10	8	10
15000	11	5	4	6	-2	-4	-21	-11	-9	-9	-15	-24	15	14	11	14	
LOWEST AFE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	
	5000	-3	-4	-1	0	-2	-7	2	3	1	0	1	-3	8	7	5	7
	10000	-7	-7	-2	-3	-5	-10	4	5	2	3	3	-1	8	8	5	7
15000	-10	-10	-2	-9	-5	-17	7	4	2	6	4	-1	11	11	6	10	
LOWEST AFE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	PCNT AL	AFRACE	TC	TC	TC	TC	
	5000	0	0	0	6	-2	-2	-10	-7	-5	-7	-8	-19	15	15	10	12
	10000	14	12	8	10	-2	-1	-22	-17	-10	-12	-15	-29	17	17	11	15
15000	25	12	11	16	15	1	-40	-23	-15	-26	-25	-42	24	24	14	23	

HEADWINDS--CALCULATED FOR A 140-KT AIRSPEED.

**A--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN LEAVES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

EQUIVALENT HEADWINDS*																STANDARD DEVIATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
PORT IN FEET		DIRECT					RETURN					JAN APR JUL OCT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		JAN	APR	JUL	OCT	**ASC	AT5	ACD	JAN	APR	JUL					OCT	**ASC	AT5	AB5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
LIVER AFE		TC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

*HEADWINDS--COMPUTED FOR A 120-FT AIRSPEED.

***MINUTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

+PLUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EGLIA VALLENT HEADWINDS												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	UCT	00ASC	ATS	AUS	JAN	APR	JUL	CCT	00ASO		ATS	AOS	
EGLIA AFB																
5000	-2	-3	-4	-2	-4	-10	-12	4	2	4	2	3	-3	-4	500 N.M.I.	
10000	1	1	-3	-1	-1	-7	-9	-2	0	4	0	0	-7	-9	7 9	
18000	1	5	0	1	3	-4	-6	-13	-13	0	-3	-7	-17	-20	11 11 7 10 13	
EGLIA AFB																
5000	-2	0	-2	0	-1	-6	-9	2	0	2	0	0	-5	-7	442 N.M.I.	
10000	7	6	-1	1	2	-4	-6	-8	-7	1	-1	-3	-11	-13	7 9	
18000	16	17	0	7	5	-2	-2	-23	-21	0	-8	-12	-25	-28	11 11 8 10 14	
EGLIA AFB																
5000	10	8	4	4	6	-1	-2	-10	-8	-4	-4	-7	-14	-16	291 N.M.I.	
10000	20	16	4	5	10	1	0	-21	-17	-4	-6	-12	-22	-24	12 12 11 11 12	
18000	35	27	4	17	18	5	2	-38	-30	-4	-19	-21	-38	-42	13 13 9 12 17	
EGLIA AFB																
5000	7	7	3	4	5	-2	-3	-8	-7	-3	-4	-6	-13	-15	252 N.M.I.	
10000	18	15	3	5	5	0	-1	-19	-16	-3	-5	-10	-20	-23	12 12 11 11 12	
18000	35	26	4	16	15	3	3	-37	-30	-3	-18	-21	-37	-41	13 13 8 12 16	
EGLIA AFB																
5000	-4	-1	-3	-1	-3	-5	-11	3	1	3	1	2	-4	-5	435 N.M.I.	
10000	3	3	-2	0	0	-6	-7	-5	-4	3	0	-1	-9	-11	11 10 7 9	
18000	11	13	0	4	5	-3	-5	-18	-17	0	-6	-9	-21	-24	12 11 7 10 13	
EGLIA AFB																
5000	5	5	4	3	6	-1	-1	-10	-9	-4	-3	-7	-13	-15	1122 N.M.I.	
10000	15	17	5	6	10	3	1	-21	-18	-5	-7	-12	-21	-24	9 7 9	
18000	34	29	6	17	20	8	6	-37	-31	-7	-18	-22	-36	-40	11 11 7 10 13	
EGLIA AFB																
5000	-4	-3	-5	-3	-4	-5	-10	4	3	6	3	4	0	-2	900 N.M.I.	
10000	0	0	-5	-2	-2	-6	-9	-1	0	5	2	1	-4	-6	8 6 7	
18000	5	10	-2	0	2	-4	-6	-13	-13	2	-1	-5	-15	-18	9 6 8	
EGLIA AFB																
5000	5	6	5	5	6	-1	-1	-10	-7	-5	-6	-7	-14	-15	1311 N.M.I.	
10000	16	11	7	9	10	3	1	-21	-15	-9	-11	-14	-22	-24	11 10 7 9	
18000	27	15	9	10	16	5	3	-39	-23	-12	-24	-23	-37	-40	12 12 8 11 16	
EGLIA AFB																
5000	-2	-4	-3	0	-3	-7	-9	1	4	3	0	2	-2	-3	1099 N.M.I.	
10000	-2	-3	-3	-2	-3	-5	-9	2	2	3	2	2	-2	-3	8 7 5 7 7	
18000	-4	-1	0	-3	-2	-8	-10	0	-1	0	2	0	-5	-7	8 8 6 7 9	

HEADWINDS--COMPUTED FOR A 100-KT AIRSPEED.

***--DEUTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS ARE STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADINGS IN KNOTS FOR GREAT CIRCLE AIR ROUTES											
	DIRECT						RETURN					
	JAN	APR	JUL	OCT	APR	JUL	JAN	APR	JUL	OCT	APR	JUL
STANDARD DEVIATION												
	JAN	APR	JUL	OCT	APR	JUL	JAN	APR	JUL	OCT	APR	JUL
EGLIN AFB	10	7	4	4	4	4	-11	-8	-4	-4	-7	-14
5000	16	14	7	7	7	7	-22	-17	-7	-8	-13	-23
10000	30	16	7	17	17	17	-40	-26	-8	-22	-23	-38
18000												
EGLIN AFB	-1	-5	-4	-2	-4	-4	0	5	4	3	3	0
5000	-1	-2	-7	-3	-4	-4	0	2	6	3	2	-1
10000	3	3	-4	-2	-1	-1	-5	-5	3	1	-1	-7
18000												
EGLIN AFB	5	0	4	4	4	4	-10	-7	-4	-4	-6	-14
5000	15	12	6	6	6	6	-20	-15	-6	-7	-12	-21
10000	26	14	6	15	15	15	-38	-23	-7	-20	-21	-36
18000												
EGLIN AFB	-10	-8	-3	-4	-4	-4	9	7	3	4	5	-1
5000	-20	-16	-2	-6	-6	-6	19	15	2	6	9	0
10000	-36	-30	0	-18	-21	-21	36	28	0	16	18	3
18000												
EGLIN AFB	2	4	1	3	3	3	-3	-5	0	-3	-3	-10
5000	12	11	1	3	3	3	-14	-12	-1	-4	-7	-16
10000	26	24	3	12	14	14	-32	-27	-2	-14	-18	-32
18000												
EGLIN AFB	-4	-2	-5	-3	-4	-4	4	2	6	3	4	0
5000	3	2	-5	-2	-1	-1	-4	-2	5	1	0	-6
10000	12	14	-2	1	4	4	-16	-16	2	-3	-7	-18
18000												
EGLIN AFB	-4	-2	-6	-4	-5	-5	4	2	6	3	3	0
5000	3	2	-5	-2	-1	-1	-5	-3	5	1	0	-6
10000	14	15	-2	2	5	5	-16	-16	2	-3	-8	-19
18000												
EGLIN AFB	-2	-5	-3	-3	-3	-3	1	5	3	0	2	-2
5000	-2	-2	-4	-2	-3	-3	1	2	3	2	2	-2
10000	-1	0	-1	-2	-1	-1	-2	-3	1	2	0	-6
18000												
EGLIN AFB	-3	-3	-3	0	-3	-3	2	3	3	0	2	-2
5000	-4	-3	-2	-1	-3	-3	3	3	2	2	2	-2
10000	-6	-4	0	-3	-3	-3	4	1	0	3	1	-4
18000												

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**A--LEASTS ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADLINES AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

WEIGHT IN FEET	EQUIVALENT HEADLINE AND RETURN												STANCARE DEVIATION			
	DIRECT						RETURN						JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	0000	0000	JAN	APR	JUL	OCT	0000	0000	0000	0000	0000	0000
EGLIN AFB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-4	-2	-6	-4	-5	-5	-10	-4	-2	6	3	0	-2	8	7	1156 N.M.I.
10000	3	2	-5	-1	-1	-6	-8	-4	-3	5	1	0	-8	9	6	5 7
18000	14	14	-2	2	5	-2	-4	-17	-17	2	-3	-8	-21	12	11	6 8
EGLIN AFB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	11	8	4	3	6	-1	-2	-11	-8	-4	-3	-7	-14	12	12	371 N.M.I.
10000	15	15	5	5	10	1	0	-21	-16	-5	-6	-12	-22	13	13	8 11
18000	32	23	4	16	16	4	1	-38	-28	-4	-19	-21	-37	19	19	9 13
EGLIN AFB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-3	-4	-3	0	-3	-6	-9	2	4	3	0	2	-2	8	8	988 N.M.I.
10000	-3	-3	-3	-2	-3	-6	-9	3	3	3	2	2	-2	8	8	5 7
18000	-6	-2	0	-3	-3	-5	-11	2	0	0	2	0	-5	11	11	6 7
EGLIN AFB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	10	7	4	4	6	0	-2	-11	-6	-4	-5	-7	-14	11	11	973 N.M.I.
10000	17	14	7	7	10	2	1	-22	-17	-8	-9	-14	-23	13	13	8 10
18000	25	17	6	17	16	5	3	-40	-25	-10	-23	-23	-38	18	17	10 17
EGLIN AFB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-4	-4	-7	-4	-6	-5	-10	4	4	7	4	5	0	7	6	1468 N.M.I.
10000	0	0	-7	-3	-3	-6	-9	-1	0	7	3	2	-3	7	7	4 6
18000	5	9	-4	0	2	-4	-6	-12	-11	4	0	-4	-13	10	5	5 6
ELISAETTVILLE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	4	2	4	3	3	0	-1	-3	-2	-3	-3	-3	-7	6	7	870 N.M.I.
10000	1	-1	0	1	0	-5	-6	-1	1	0	-1	0	-5	7	7	4 7
18000	0	-1	0	0	-1	-7	-8	1	0	-1	0	0	-6	7	9	7 8
ELISAETTVILLE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	0	0	3	0	1	-1	-2	0	-4	-3	0	-2	-5	4	4	1814 N.M.I.
10000	0	0	5	5	4	0	0	-1	-6	-5	-6	-5	-10	4	5	3 4
18000	1	4	3	3	4	0	0	-7	-4	-3	-3	-5	-9	5	6	5 5
ELISAETTVILLE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	0	0	2	2	-2	-6	-7	7	0	-2	5	2	-1	4	4	1664 N.M.I.
10000	-2	-3	1	-2	-2	-5	-6	2	3	-1	2	1	-2	5	5	4 4
18000	0	-2	-3	-1	-2	-6	-7	-1	2	3	0	0	-3	5	6	5 5
ELISAETTVILLE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-4	0	0	0	0	-4	-5	5	-4	-6	3	-1	-6	5	5	837 N.M.I.
10000	-2	6	4	7	3	-2	-3	4	-6	-3	-7	-3	-8	5	7	4 5
18000	10	2	1	4	4	-1	-2	-10	-2	-1	-3	-5	-10	6	7	6 7

HEADLINES—COMPUTED FOR A 120-KT AIRSPEED.

**A—CENCIES ANNUAL EQUIVALENT HEADLINES FOR INDICATED PER CENT RELIABILITIES.
PIALS SUCH LOCATES HEADLINES.

EQUVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADINGS										STANDARD DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	ASC	A75	A85	JAN	APR	JUL	OCT	A450	A75	A85	
ELISAETHVILLE															
TC	3	3	3	3	1	-2	-2	1	-3	-3	0	-1	-4	-5	1021 N.MI.
5000	1	6	6	6	5	2	1	5	-8	-5	-8	-6	-10	-11	5 3 4
10000	5	4	3	4	4	0	3	4	-4	-3	-3	-5	-10	-11	5 4 5
10000															6 6 5
ELISAETHVILLE															
TC	-9	-12	-1	-1	-6	-11	-12	3	10	12	1	6	1	0	1017 N.MI.
5000	-2	-4	-4	-4	-5	-5	-10	4	6	4	6	5	1	0	4 4 3
10000	-4	-4	6	2	1	-3	-4	3	-5	-7	-2	-3	-9	-10	6 6 5
10000	-3														6 7 8
ELISAETHVILLE															
TC	-2	-4	-4	-4	-5	-5	-10	7	2	3	5	4	1	0	838 N.MI.
5000	-6	-6	3	3	-4	-5	-10	5	7	-2	6	3	0	-2	5 4 4
10000	-5	-6	-2	-2	-4	-5	-10	7	3	2	4	4	0	-1	5 6 6
10000	-7														6 7 8
ELLINGTON AFB															
TC	8	6	3	3	6	0	-2	-11	-6	-6	-3	-7	-15	-17	170 N.MI.
5000	10	14	2	5	5	0	-1	-19	-15	-2	-6	-10	-20	-23	13 12 11
10000	22	22	-3	11	13	-1	-4	-35	-26	3	-14	-17	-34	-38	13 13 9
10000															19 18 10
ELLINGTON AFB															
TC	8	4	4	4	6	0	-2	-11	-6	-4	-4	-7	-14	-16	556 N.MI.
5000	11	16	3	7	10	2	0	-21	-16	-3	-7	-11	-21	-24	12 11 10
10000	27	27	0	10	18	3	0	-39	-30	0	-18	-21	-38	-41	12 12 8
10000															18 17 9
ELLINGTON AFB															
TC	5	5	5	5	7	0	0	-12	-5	-5	-4	-8	-14	-16	886 N.MI.
5000	12	17	5	7	12	3	1	-23	-16	-4	-7	-13	-23	-25	11 10 10
10000	27	27	2	17	15	5	2	-41	-31	-3	-20	-23	-39	-42	11 12 11
10000															17 16 9
ELLINGTON AFB															
TC	9	9	5	4	7	0	0	-13	-5	-5	-5	-8	-15	-17	1054 N.MI.
5000	12	17	5	6	12	4	2	-24	-16	-6	-8	-14	-23	-26	11 10 10
10000	27	27	2	10	15	6	4	-43	-30	-6	-22	-24	-40	-43	11 11 11
10000															17 16 9
ELLINGTON AFB															
TC	7	3	4	4	5	-1	-2	-10	-8	-3	-4	-6	-14	-16	513 N.MI.
5000	10	15	2	6	5	1	0	-20	-16	-2	-7	-11	-21	-23	12 11 10
10000	20	20	-1	16	16	2	0	-38	-30	1	-17	-21	-37	-41	12 12 11
10000															17 17 9
ELLINGTON AFB															
TC	-1	-5	-3	-3	-4	-6	-10	3	1	5	3	3	-1	-2	1233 N.MI.
5000	3	3	-5	0	0	-7	-4	-4	-4	5	0	-1	-7	-8	8 8 7
10000	15	16	-4	4	6	-2	-4	-19	-16	4	-5	-9	-20	-22	11 11 6
10000															6 6 9

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

***--LENGTHS AND STANDARD DEVIATION HEADINGS FOR INDICATED PER CENT RELIABILITIES.

PLANS SIGN DEACTES HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION			
	DIRECT					RETURN					JAN APR JUL OCT			
	JAN	APR	JUL	OCT	00AS0	00AS0	00AS0	00AS0	00AS0	00AS0	JAN	APR	JUL	OCT
GLAYMATA CITY														
ELLINGTON AFB	TC	-6	-2	-5	-10	-11					5	5	6	2
5000	-3	-2	-5	-2	-4	-5	-10				2	2	5	2
10000	-4	0	-3	-2	-3	-5	-10				0	-3	3	1
10000														
HAYANA														
ELLINGTON AFB	TC	-4	-2	-3	-8	-10					1	0	4	1
5000	-2	0	-4	-2	-3	-8	-10				-7	-5	4	-2
10000	6	5	-4	2	1	-5	-6				-21	-21	3	-8
10000	17	18	-3	7	6	-1	-3							
MCNESTAC AFB														
ELLINGTON AFB	TC	-1	0	0	-5	-7					-1	-3	1	0
5000	2	2	-1	0	-5	-7					-11	-5	1	-4
10000	10	5	-1	3	4	-2	-3				-27	-25	2	-11
10000	24	23	-2	10	12	0	-1							
MUNTER AFB														
ELLINGTON AFB	TC	4	4	6	6	0	-1				-11	-6	-3	-4
5000	10	10	3	6	10	2	0				-21	-17	-3	-7
10000	20	20	0	16	15	4	1				-39	-31	-1	-18
10000														
JACKSONVILLE														
ELLINGTON AFB	TC	7	3	4	5	-1	-2				-9	-7	-2	-4
5000	6	7	2	6	5	1	0				-1	-15	-2	-6
10000	15	15	0	10	10	4	1				-37	-30	0	-17
10000	35	28	0	16	16	4	1							
KEY WEST														
ELLINGTON AFB	TC	1	-2	0	-1	-7	-8				0	-1	2	0
5000	6	7	-2	3	3	-3	-4				-9	-8	2	-3
10000	21	21	-3	9	11	0	-2				-25	-23	3	-10
10000														
KINGLEY AFB														
ELLINGTON AFB	TC	5	4	5	6	0	0				-10	-5	-4	-3
5000	10	10	4	6	10	2	0				-21	-18	-4	-7
10000	20	20	4	16	16	7	5				-38	-31	-4	-18
10000														
KINGSTON														
ELLINGTON AFB	TC	-3	-6	-3	-5	-10					4	3	7	3
5000	-4	1	-7	-1	-2	-9					-2	-1	7	1
10000	11	11	-4	2	4	-3	-5				-15	-15	4	-3
10000														
LORING AFB														
ELLINGTON AFB	TC	7	6	6	7	1	0				-12	-6	-6	-7
5000	10	10	5	10	10	5	3				-23	-15	-9	-12
10000	20	20	5	19	19	8	5				-41	-26	-13	-25
10000														

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**--LARGEST ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

PIALS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANCARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS											
	DIRECT						RETURN					
	JAN	APR	JUL	CTT	AA50	AT5	AB5	JAN	APR	JUL	CTT	AA50
STANCARC DEVIATION												
	JAN	APR	JUL	CTT	AA50	AT5	AB5	JAN	APR	JUL	CTT	AA50
ELLINGTON AFB	TC											
5000	-5	-6	-6	-2	-5	-10	-11	4	6	7	1	4
10000	-2	-2	-6	-2	-4	-6	-9	2	1	6	2	3
18000	-2	2	-4	-1	-2	-6	-5	-1	-5	4	1	0
ELLINGTON AFB	TC											
5000	14	5	5	5	7	1	0	-13	-5	-5	-5	-8
10000	22	14	7	8	14	4	3	-25	-16	-7	-9	-15
18000	37	24	6	19	15	7	5	-44	-25	-8	-23	-25
ELLINGTON AFB	TC											
5000	-3	-6	-5	-2	-5	-6	-5	2	6	6	3	4
10000	-1	-2	-9	-3	-4	-5	-10	1	2	9	3	3
18000	2	3	-6	-1	-1	-6	-8	-4	-6	6	1	0
ELLINGTON AFB	TC											
5000	11	8	5	5	6	0	0	-13	-5	-5	-5	-8
10000	21	15	7	8	12	4	2	-24	-17	-7	-9	-14
18000	35	22	5	18	16	6	3	-43	-28	-7	-22	-24
ELLINGTON AFB	TC											
5000	5	7	3	3	5	-2	-3	-10	-7	-3	-4	-6
10000	15	14	0	6	5	0	-2	-19	-15	0	-6	-10
18000	35	28	-3	15	17	1	-1	-37	-30	3	-16	-20
ELLINGTON AFB	TC											
5000	5	5	1	3	3	-2	-4	-5	-6	-1	-3	-4
10000	15	12	1	5	7	0	-1	-16	-13	0	-5	-8
18000	31	26	0	14	16	3	0	-33	-26	0	-15	-19
ELLINGTON AFB	TC											
5000	-4	-2	-6	-3	-4	-5	-10	3	2	6	3	3
10000	4	2	-8	0	-1	-6	-8	-3	-3	6	0	0
18000	14	15	-4	3	5	-2	-4	-17	-17	4	-4	-8
ELLINGTON AFB	TC											
5000	-4	-2	-6	-3	-4	-5	-10	3	1	6	3	3
10000	4	2	-8	0	-1	-6	-8	-5	-3	5	0	0
18000	14	15	-4	3	5	-2	-4	-18	-16	4	-4	-9
ELLINGTON AFB	TC											
5000	-4	-2	-6	-3	-4	-5	-10	3	1	6	3	3
10000	4	2	-8	0	-1	-6	-8	-5	-3	5	0	0
18000	14	15	-4	3	5	-2	-4	-18	-16	4	-4	-9
ELLINGTON AFB	TC											
5000	-4	-2	-6	-3	-4	-5	-10	3	1	6	3	3
10000	4	2	-8	0	-1	-6	-8	-5	-3	5	0	0
18000	14	15	-4	3	5	-2	-4	-18	-16	4	-4	-9
ELLINGTON AFB	TC											
5000	-4	-2	-6	-3	-4	-5	-10	3	1	6	3	3
10000	4	2	-8	0	-1	-6	-8	-5	-3	5	0	0
18000	14	15	-4	3	5	-2	-4	-18	-16	4	-4	-9
ELLINGTON AFB	TC											
5000	-4	-2	-6	-3	-4	-5	-10	3	1	6	3	3
10000	4	2	-8	0	-1	-6	-8	-5	-3	5	0	0
18000	14	15	-4	3	5	-2	-4	-18	-16	4	-4	-9

*HEADINGS--COMPUTED FOR A 140-KT AIRSPEED.

**--CENTIES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN INDICATES HEADINGS.

EQUIVALENT HEADWINDS AND STANGARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADWINDS										STANGARC DEVIATION			
	DIRECT					RETURN					JAN APR JUL OCT			
	JAN	APR	JUL	OCT	***ASC	ATS	ABS	JAN	APR	JUL	OCT	***ASO	ATS	ABS
ELLINGTON AFB	TC				SPAN SALVADORA									
5000	-5	-6	-2	-2	-5	-10	-11	4	5	7	1	4	6	-1
10000	-3	-2	-3	-2	-4	-8	-10	2	2	5	2	2	-2	-3
18000	-3	1	-4	-2	-3	-6	-10	0	-3	4	1	0	-6	-7
ELLINGTON AFB	TC				SPAN CUPING									
5000	-4	-2	-6	-3	-4	-5	-10	3	1	6	3	3	-1	-2
10000	3	2	-5	0	0	-6	-7	-4	-3	6	0	0	-6	-7
18000	14	16	-4	3	6	-2	-4	-18	-16	4	-4	-9	-19	-21
ELLINGTON AFB	TC				SPAN AFB									
5000	11	8	5	4	6	0	-1	-12	-5	-4	-4	-7	-14	-16
10000	21	16	4	7	11	2	1	-22	-17	-4	-7	-12	-22	-24
18000	37	27	1	17	15	5	2	-40	-31	-2	-19	-23	-38	-42
ELLINGTON AFB	TC				THUNDERBOLT AFB									
5000	-5	-6	-7	-2	-6	-10	-12	5	6	7	2	5	0	-1
10000	-4	-2	-6	-2	-4	-8	-10	2	1	6	2	2	-2	-3
18000	-2	2	-4	-1	-2	-6	-9	-1	-5	4	0	0	-7	-9
ELLINGTON AFB	TC				WESTOVER AFB									
5000	14	8	6	6	7	1	0	-13	-5	-6	-6	-9	-15	-17
10000	24	16	6	9	13	5	3	-25	-16	-8	-10	-15	-24	-26
18000	30	22	7	19	15	7	5	-43	-25	-10	-24	-25	-40	-43
ELLINGTON AFB	TC				WILLENSTAC									
5000	-5	-4	-8	-3	-6	-10	-11	4	4	8	5	5	1	0
10000	-1	0	-9	-2	-4	-8	-10	0	0	9	2	2	-2	-3
18000	6	10	-5	0	2	-4	-6	-11	-12	6	-1	-4	-13	-15
ENGLAND AFB	TC				WENT BERNING									
5000	11	8	4	4	6	1	-2	-11	-5	-4	-4	-7	-15	-17
10000	22	16	4	7	11	2	0	-24	-17	-4	-8	-13	-23	-25
18000	36	25	1	18	16	4	1	-41	-31	-2	-20	-23	-40	-44
ENGLAND AFB	TC				WENT BRAC/PCPE									
5000	12	9	5	4	7	0	-1	-15	-10	-5	-4	-8	-16	-17
10000	23	16	5	7	12	3	1	-24	-15	-5	-8	-14	-24	-26
18000	40	28	4	19	21	7	4	-43	-32	-5	-21	-24	-41	-45
ENGLAND AFB	TC				WENT EUSTIS									
5000	14	9	5	5	7	1	0	-13	-10	-5	-5	-8	-15	-17
10000	25	17	7	8	13	4	2	-25	-15	-7	-9	-15	-24	-27
18000	35	26	6	19	20	3	4	-44	-31	-8	-23	-25	-41	-45

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

***--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLS SIGN GIVES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E C L I V A L E A T H E A D I N D S										STANDARD DEVIATION						
	DIRECT					RETURN					JAN APR JUL OCT						
	AN	APR	JUL	CLT	OFFIC	ATS	AUS	JAN	APR	JUL	UCT	WASJ	ATS	AUS	JAN	APR	JUL
ENGLAND AFE	5	TC	3	4	FCRT	NUCKER		-10	-8	-3	-4	-6	-14	-16	12	12	365 N.M.I.
5000	20	15	3	7	10	1	0	-21	-16	-2	-8	-11	-22	-24	13	13	0 11
10000	36	25	1	17	15	4	1	-39	-31	-1	-19	-22	-35	-42	19	18	9 12
ENGLAND AFE	5	TC	6	7	GCSE	AP		-11	-6	-6	-8	-8	-14	-15	10	9	1914 N.M.I.
5000	16	5	4	10	10	3	2	-20	-11	-10	-12	-14	-21	-22	10	10	7 8
10000	26	13	11	17	15	7	4	-36	-20	-14	-24	-23	-34	-37	15	14	0 10
ENGLAND AFE	3	TC	-4	-2	GLANTAPPC	RAY		2	0	4	2	2	-2	-3	8	8	1162 N.M.I.
5000	4	3	-4	0	0	-5	-7	-6	-4	4	0	-1	-8	-10	9	9	5 7
10000	15	16	-2	4	4	-1	-3	-20	-15	2	-6	-10	-21	-24	12	12	6 8
ENGLAND AFE	5	TC	-5	-1	GLANTAPPC	CITY		4	4	5	1	3	-1	-2	9	8	1011 N.M.I.
5000	4	-3	-4	-1	-5	-5	-11	3	3	4	1	2	-2	-3	8	8	5 7
10000	7	-2	-1	-2	-3	-10	-12	2	-1	1	1	0	-5	-7	12	11	6 10
ENGLAND AFE	11	TC	7	7	WAPPC	AFE		-13	-6	-7	-8	-9	-15	-17	10	10	1051 N.M.I.
5000	21	14	10	12	13	2	3	-25	-16	-11	-14	-16	-24	-26	11	11	7 8
10000	34	20	13	22	21	11	9	-42	-27	-17	-28	-28	-40	-43	15	15	9 14
ENGLAND AFE	2	TC	0	-1	MAVANA			1	0	3	1	1	-4	-6	10	10	736 N.M.I.
5000	5	4	-3	1	1	-5	-6	-7	-5	3	-2	-3	-10	-11	10	10	7 9
10000	14	16	-1	6	7	-1	-3	-20	-20	1	-8	-11	-23	-26	14	14	8 12
ENGLAND AFE	6	TC	2	0	PCPSTEAL	AFE		-1	-3	1	-1	-1	-7	-9	10	10	730 N.M.I.
5000	10	8	0	3	4	-2	-4	-12	-5	1	-4	-6	-14	-16	11	11	7 9
10000	23	22	0	10	12	1	-1	-24	-25	0	-12	-15	-29	-32	15	15	8 13
ENGLAND AFE	10	TC	4	4	MUNTER	AFE		-11	-5	-4	-4	-7	-14	-16	12	11	504 N.M.I.
5000	21	16	4	7	11	2	0	-22	-17	-4	-7	-12	-22	-25	12	12	6 10
10000	36	25	3	18	20	6	3	-40	-32	-3	-20	-23	-39	-43	18	17	9 16
ENGLAND AFE	8	TC	3	4	JACKSONVILLE			-9	-8	-3	-4	-6	-13	-15	11	11	564 N.M.I.
5000	15	15	3	6	5	-1	-3	-20	-16	-2	-6	-11	-20	-23	12	12	6 10
10000	25	29	2	16	15	5	2	-38	-31	-2	-18	-22	-38	-41	17	17	9 16

HEADING--COMPUTED FOR A 140-KT AIRSPEED.
 ---CIRCLES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
 PLUS SIGN EXACTS HEADINGS.

[illegible][illegible]

MEANINGS--COMPUTED FOR A 120-KT AIRSPEED.
 80A--LENCTES ANNUAL EQUIVALENT MEANINGS FOR INDICATED PER CENT RELIABILITIES.
 PIALS SIGA LENCTES MEANINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E G L I V A L E A T H E A D I A D S												STANDARD DEVIATION					
	DIRECT						RETURN											
	-AN	APR	JUL	CCT	WASCO	ATL	AUS	JAN	APR	JUL	OCT	WASCO	ATL	AUS	JAN	APR	JUL	OCT
ENGLAND AFE																		
5000	-4	-3	-7	-4	-5	-5	-10	3	3	7	4	4	4	0	6	6	4	6
10000	0	0	-8	-2	-3	-6	-9	-1	0	7	2	1	-3	-4	7	7	5	6
18000	5	10	-4	0	2	-4	-5	-13	-13	4	-2	-6	-14	-16	9	9	5	8
FCRT EENNING																		
5000	12	9	5	4	7	0	-1	-13	-5	-4	-4	-8	-15	-17	12	12	8	11
10000	22	17	6	6	11	2	0	-24	-19	-6	-7	-13	-24	-27	14	14	9	13
18000	38	26	7	19	20	7	4	-43	-31	-8	-22	-25	-42	-46	20	20	11	19
FCRT EENNING																		
5000	11	8	4	4	6	0	-2	-12	-5	-4	-4	-7	-15	-17	12	12	8	11
10000	20	15	7	7	11	2	0	-23	-16	-7	-8	-14	-24	-27	14	14	9	13
18000	34	21	8	16	16	6	3	-42	-28	-9	-23	-24	-40	-44	20	19	11	19
FCRT EENNING																		
5000	1	0	2	3	1	-4	-5	-3	-2	-3	-4	-4	-9	-10	9	9	7	8
10000	3	0	1	2	1	-4	-6	-8	-3	-3	-5	-5	-11	-13	10	10	7	9
18000	4	0	1	3	1	-6	-8	-10	-6	-5	-11	-10	-20	-22	13	13	9	13
FCRT EENNING																		
5000	7	4	5	6	5	0	-2	-9	-6	-6	-7	-7	-14	-15	10	10	7	9
10000	14	8	6	9	5	2	1	-19	-11	-9	-12	-13	-20	-22	11	11	8	10
18000	24	11	11	17	15	5	3	-35	-15	-14	-24	-22	-34	-37	16	15	10	15
FCRT EENNING																		
5000	-3	-2	-4	-2	-3	-5	-10	3	2	4	2	2	-2	-3	9	8	6	8
10000	4	1	-3	-1	0	-6	-7	-5	-3	3	1	0	-7	-9	10	9	6	9
18000	12	11	-1	1	4	-3	-5	-17	-16	1	-3	-7	-19	-21	13	13	7	11
FCRT EENNING																		
5000	-3	-3	-2	0	-2	-7	-8	2	3	2	0	1	-2	-4	8	8	5	7
10000	-5	-4	-2	-2	-4	-5	-10	4	4	2	2	2	-1	-3	8	8	6	7
18000	-11	-7	0	-5	-5	-13	-15	6	3	0	3	2	-4	-5	12	11	6	10
FCRT EENNING																		
5000	10	7	7	7	7	1	0	-12	-6	-7	-8	-9	-15	-17	10	10	7	9
10000	20	14	10	12	12	6	4	-24	-17	-11	-14	-16	-25	-27	12	12	8	11
18000	32	15	14	23	21	11	8	-42	-26	-17	-28	-27	-40	-43	16	16	10	15
FCRT EENNING																		
5000	-4	-3	-3	-2	-4	-10	-11	4	3	4	2	3	-2	-4	10	10	7	9
10000	0	0	-2	-1	-1	-8	-9	-1	0	3	1	0	-6	-8	11	11	7	10
18000	0	3	0	0	0	-6	-10	-5	-10	0	-1	-4	-14	-17	15	15	8	13

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**A--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

PINS SIGN INDICATES HEADINGS.

EQUIVALENT HEADINGS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS														STANDARD DEVIATION			
	DIRECT				RETURN													
	JAN	APR	JUL	CCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85	JAN	APR	JUL	OCT
FORT BENNING																		
5000	-3	C	-2	C	-2	-6	-10	2	C	2	0	1	-5	-6	11	10	7	10
10000	3	3	-1	0	C	-6	-8	-6	-5	1	0	-2	-10	-12	12	12	8	11
18000	10	10	0	3	4	-4	-6	-18	-17	0	-6	-9	-21	-24	16	16	9	14
FORT BENNING																		
5000	5	8	4	4	6	-1	-3	-10	-8	-4	-4	-7	-15	-17	13	12	9	11
10000	21	17	5	5	11	1	C	-22	-16	-4	-6	-12	-23	-26	14	14	9	13
18000	37	29	6	18	20	6	4	-40	-32	-6	-20	-23	-40	-44	20	20	11	18
FORT BENNING																		
5000	4	5	1	3	3	-4	-5	-5	-5	-1	-3	-4	-11	-13	12	12	8	11
10000	13	10	2	3	6	-2	-4	-16	-13	-2	-4	-8	-18	-21	14	14	9	13
18000	24	21	5	12	12	2	0	-32	-26	-5	-15	-18	-33	-37	19	15	10	17
FORT BENNING																		
5000	-4	-2	-3	-1	-3	-5	-11	5	1	3	1	2	-4	-5	11	10	7	9
10000	6	0	-2	-1	-1	-8	-10	-3	-2	2	0	0	-8	-10	12	11	8	11
18000	3	6	C	0	1	-7	-9	-13	-12	0	-3	-6	-17	-20	16	16	9	14
FORT BENNING																		
5000	10	5	4	3	6	C	-1	-11	-10	-4	-3	-7	-14	-16	10	10	7	10
10000	21	18	6	7	11	4	2	-23	-15	-6	-7	-13	-23	-26	12	12	7	11
18000	36	30	8	17	20	5	7	-39	-32	-8	-19	-23	-38	-41	16	16	8	14
FORT BENNING																		
5000	-3	-3	-4	-2	-4	-5	-10	3	2	4	2	2	-2	-3	8	8	6	8
10000	C	C	-4	-2	-2	-7	-9	-1	-1	4	2	0	-5	-6	9	5	6	8
18000	7	8	-2	C	1	-5	-7	-12	-12	2	-1	-5	-14	-17	13	12	7	10
FORT BENNING																		
5000	5	6	5	6	6	C	-1	-11	-7	-5	-6	-8	-14	-16	11	11	8	9
10000	16	11	8	9	10	3	1	-22	-15	-9	-11	-14	-23	-25	13	12	9	11
18000	28	15	11	15	17	6	4	-40	-24	-14	-25	-24	-38	-42	18	17	10	17
FORT BENNING																		
5000	-2	-4	-2	0	-3	-7	-8	1	3	3	0	1	-2	-3	8	7	5	7
10000	-3	-3	-2	-2	-3	-6	-5	2	2	2	2	2	-2	-3	8	8	5	7
18000	-5	-2	0	-3	-3	-5	-11	1	C	0	2	0	-5	-6	11	10	6	9
FORT BENNING																		
5000	10	7	4	5	6	C	-2	-12	-8	-4	-5	-7	-15	-17	12	12	8	11
10000	15	15	7	7	11	2	C	-23	-16	-8	-9	-14	-24	-27	14	14	9	13
18000	32	15	9	15	16	6	3	-42	-27	-11	-24	-25	-40	-44	19	19	11	18

HEADINGS---COMPUTED FOR A 120-KT AIRSPEED.

***--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
PIALS SIGN LENGTHS HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWIND												STANDARD DEVIATION						
	DIRECT						RETURN												
	JAN	APR	JUL	UCL	NOV	DEC	JAN	APR	JUL	UCL	NOV	DEC							
FORT EENING														1662 M.MI.					
5000	C	TC	-5	-3	-2	-3	-7	-8	0	5	3	2	2	-1	-2	6	6	4	5
10000	C	-2	-6	-3	-4	-4	-6	-9	0	1	5	3	2	-2	-3	7	6	5	6
15000	3	-3	-3	-1	C	-5	-6	-6	-6	-6	3	0	-1	-8	-10	9	5	5	7
FCAT EENING														603 M.MI.					
5000	5	TC	6	3	4	5	-1	-3	-11	-7	-3	-5	-7	-14	-16	12	12	8	11
10000	16	12	6	6	6	5	1	-1	-21	-16	-7	-8	-13	-22	-25	14	14	9	13
15000	27	15	7	16	14	3	0	0	-40	-24	-9	-22	-22	-38	-42	20	20	11	19
FCMT EENING														305 M.MI.					
5000	-11	TC	-8	-4	-3	-7	-14	-16	11	8	4	3	6	-1	-2	12	12	8	11
10000	-20	-16	-4	-6	-11	-21	-24	-24	19	15	4	6	10	1	0	13	13	9	12
15000	-36	-26	0	-17	-20	-37	-41	-41	34	24	0	15	16	2	0	19	18	10	17
FCRT EENING														340 M.MI.					
5000	C	TC	2	0	2	C	-5	-7	-1	-3	0	-2	-2	-8	-10	11	11	8	10
10000	6	7	1	2	4	4	-3	-5	-11	-5	0	-2	-5	-14	-16	13	13	9	12
15000	17	16	3	7	5	0	-3	-3	-26	-22	-3	-1	-14	-28	-32	18	18	9	16
FCRT EENING														1076 M.MI.					
5000	-3	TC	-2	-5	-2	-4	-5	-10	3	2	5	2	3	-1	-3	8	8	6	7
10000	3	1	-4	-2	-1	-7	-8	-8	-5	-3	4	1	0	-7	-8	9	9	6	8
15000	12	12	-1	1	4	-3	-4	-4	-17	-16	1	-3	-8	-18	-21	13	12	7	10
FCRT EENING														1275 M.MI.					
5000	-3	TC	-2	-5	-3	-4	-6	-10	2	1	5	3	3	-1	-3	8	7	5	7
10000	4	2	-3	-1	C	-5	-7	-7	-6	-3	3	1	-1	-7	-9	9	8	6	8
15000	15	15	-1	2	C	-2	-3	-3	-19	-16	1	-4	-9	-20	-23	12	12	7	10
FCMT EENING														1357 M.MI.					
5000	-1	TC	-4	-2	0	-2	-7	-8	0	4	3	0	1	-2	-3	7	7	5	6
10000	-2	-4	-3	-2	-3	-7	-8	-8	1	2	3	2	2	-2	-3	7	7	5	6
15000	-1	C	-1	-2	-1	-7	-8	-8	-2	-3	0	1	-1	-7	-8	10	10	6	8
FCAT EENING														1154 M.MI.					
5000	-3	TC	-3	-2	0	-2	-7	-8	2	3	2	0	0	-2	-4	8	8	5	7
10000	-4	-4	-2	-2	-2	-6	-10	-10	3	3	2	2	2	-2	-3	8	8	6	7
15000	-5	-5	0	-4	-4	-11	-13	-13	4	2	3	3	1	-4	-5	11	11	6	9
FCRT EENING														1169 M.MI.					
5000	-3	TC	-2	-5	-3	-4	-5	-10	3	1	5	2	2	-2	-3	8	7	6	8
10000	4	2	-4	-1	-1	C	-6	-7	-6	-3	3	1	-1	-7	-9	9	5	6	8
15000	15	13	-1	1	1	5	-2	-4	-10	-17	1	-3	-8	-19	-22	12	12	7	10

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

NO--INDICATES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN INDICATES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADWINDS												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	APR	SEP	JAN	APR	JUL	OCT	APR	SEP	JAN	APR	JUL	OCT
FCMT EENNIAL	TC	5	5	4	SPAN AFE	7	C	-2								
5000	12	5	5	4	5	4	7	C	-2							
10000	22	10	6	6	12	12	2	C								
18000	35	20	7	19	21	21	7	4								
FCMT EENNIAL	TC	-4	-3	-2	TCNCONTIN AR	-3	-8	-9								
5000	-2	-4	-3	-2	3	-3	-8	-9								
10000	-4	-3	-2	-2	-3	-3	-8	-9								
18000	-7	-4	0	-4	-3	-3	-11	-13								
FCMT EENNIAL	TC	7	5	5	WESTICVER AFE	6	C	-2								
5000	10	7	5	5	5	6	C	-2								
10000	16	14	6	8	11	11	3	1								
18000	31	18	10	15	16	16	6	3								
FCMT EENNIAL	TC	-3	-6	-4	WILLENSTAC	-5	-10									
5000	-3	-3	-6	-4	-5	-5	-10									
10000	1	4	-6	-3	-3	-3	-9									
18000	5	5	-3	3	2	2	-4	-5								
FCMT ERAEC/FCFE	TC	5	3	3	FCMT ELSTIS	4	-3	-3								
5000	7	5	3	3	3	4	-3	-3								
10000	11	11	6	6	6	6	-1	-3								
18000	21	11	7	14	12	12	C	-3								
FCMT ERAEC/FCFE	TC	-9	-4	-4	FCMT RUCNER	-7	-15	-17								
5000	-12	-9	-4	-4	-7	-7	-15	-17								
10000	-24	-17	-5	-6	-12	-12	-23	-25								
18000	-40	-28	-6	-20	-22	-22	-35	-43								
FCMT ERAEC/FCFE	TC	0	1	2	FCBISHEP	C	-5	-6								
5000	0	0	1	2	C	C	-5	-6								
10000	1	0	0	1	C	C	-6	-7								
18000	2	0	0	2	C	C	-8	-10								
FCMT ERAEC/FCFE	TC	4	5	6	GCSE AR	5	-1	-3								
5000	6	4	5	6	5	5	-1	-3								
10000	12	6	7	9	6	6	1	C								
18000	21	10	10	17	14	14	3	1								
FCMT ERAEC/FCFE	TC	-3	-3	-2	GLANTANAPC EAY	-3	-5	-10								
5000	-3	-3	-3	-2	-3	-3	-5	-10								
10000	2	-1	-2	-2	-1	-1	-7	-9								
18000	3	3	-2	-3	C	C	-8	-10								

*HEADWINDS—COMPUTED FOR A 120-KT AIRSPEED.

**A—CONSTANTS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS												STANDARD DEVIATION
	DIRECT						RETURN						
	JAN	APR	JUL	OCT	APR	JUL	JAN	APR	JUL	OCT	APR	JUL	
	AA	APR	JUL	OCT	APR	JUL	AA	APR	JUL	OCT	APR	JUL	OCT
GLATAMALA CITY													
PORT ENAGE/FCFE	TC												
5000	-3	-1	0	-2	-7	-8							
10000	-7	-1	-2	-4	-5	-11							
18000	-15	-11	-7	-6	-10	-18							
HARPOIN AFB													
PORT ENAGE/FCFE	TC												
5000	5	7	8	7	7	0							
10000	15	14	10	13	12	3							
18000	31	15	15	23	21	10							
PAPANA													
PORT ENAGE/FCFE	TC												
5000	-5	-3	-3	-4	-10	-12							
10000	-7	-2	-3	-5	-12	-13							
18000	-12	-5	-3	-8	-17	-20							
MCMESTEAL AFB													
PORT ENAGE/FCFE	TC												
5000	-5	-4	-2	-2	-4	-10							
10000	-5	-4	-2	-3	-4	-11							
18000	-11	-7	-3	-7	-17	-19							
HUNTER AFB													
PORT ENAGE/FCFE	TC												
5000	-5	-6	-3	-2	-5	-13							
10000	-10	-12	-3	-4	-10	-21							
18000	-32	-21	-5	-16	-33	-36							
JACKSONVILLE													
PORT ENAGE/FCFE	TC												
5000	-5	-3	-3	-2	-5	-12							
10000	-12	-11	-3	-4	-17	-19							
18000	-20	-16	-4	-14	-25	-33							
KEY WEST													
PORT ENAGE/FCFE	TC												
5000	-5	-3	-3	-2	-4	-10							
10000	-7	-2	-3	-5	-12	-14							
18000	-14	-5	-3	-8	-16	-21							
KINGLEY AFB													
PORT ENAGE/FCFE	TC												
5000	11	10	4	5	6	0							
10000	23	18	7	12	4	1							
18000	30	30	5	16	20	6							
KINCAID													
PORT ENAGE/FCFE	TC												
5000	-3	-3	-2	-2	-3	-10							
10000	0	-2	-2	-3	-4	-9							
18000	0	0	-2	-4	-2	-11							
1384 N.M.I.													
	0	7	5	7	5	7							
	0	0	0	5	7	7							
	11	11	6	10	6	10							
1208 N.M.I.													
	12	11	0	10	10	10							
	13	13	9	12	9	12							
	18	18	11	17	11	17							
749 N.M.I.													
	10	9	7	9	7	9							
	11	11	7	10	7	10							
	15	15	8	13	8	13							
505 N.M.I.													
	11	10	7	10	7	10							
	12	12	8	11	8	11							
	17	16	9	15	9	15							
217 N.M.I.													
	12	12	9	12	9	12							
	14	14	9	14	9	14							
	20	20	11	19	11	19							
314 N.M.I.													
	12	12	8	11	8	11							
	14	14	9	13	9	13							
	19	19	10	18	10	18							
652 N.M.I.													
	10	10	7	9	7	9							
	12	11	7	11	7	11							
	16	16	9	14	9	14							
729 N.M.I.													
	12	11	8	12	8	12							
	14	13	9	12	9	12							
	18	18	10	16	10	16							
1038 N.M.I.													
	8	8	6	8	6	8							
	10	10	6	9	6	9							
	13	13	7	11	7	11							

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**--DEUTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

PILES SIGN DEUTES HEADINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS												STANDARD DEVIATION		
	DIRECT						RETURN								
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC			
FORT ERAGG/FCFE	TC														
5000	7	5	5	5	5	5	-9	-6	-5	-6	-7	-14	-16	866 N.M.I.	
10000	12	10	7	5	5	5	-20	-14	-9	-11	-14	-23	-25	12 9 11	
18000	23	11	10	17	14	2	-37	-22	-14	-25	-24	-38	-41	14 10 12	
														20 19 12 19	
FORT ERAGG/FCFE	TC														
5000	-1	-3	-1	0	-2	-7	0	3	1	0	0	-3	-4	1434 N.M.I.	
10000	-4	-4	-1	-2	-2	-9	2	3	1	2	1	-2	-3	7 5 7	
18000	-6	-6	-1	-5	-5	-13	2	1	1	4	1	-4	-5	8 5 7	
														11 10 6 9	
FORT ERAGG/FCFE	TC														
5000	7	5	4	4	4	4	-10	-7	-4	-5	-7	-15	-17	359 N.M.I.	
10000	12	12	7	7	5	5	-20	-16	-8	-9	-13	-23	-26	14 13 9 12	
18000	23	12	9	16	14	1	-38	-22	-11	-23	-22	-38	-43	16 15 10 14	
														22 21 12 21	
FORT ERAGG/FCFE	TC														
5000	0	-4	-2	-1	-2	-7	-1	4	2	1	1	-2	-3	1745 N.M.I.	
10000	0	-2	-3	-2	-2	-7	-2	1	3	2	1	-3	-4	6 4 5	
18000	1	-1	-2	-3	-1	-8	-6	-4	2	1	-1	-7	-9	7 5 6	
														10 9 5 8	
FORT ERAGG/FCFE	TC														
5000	3	2	1	2	1	-6	-6	-2	-1	-3	-4	-12	-14	321 N.M.I.	
10000	4	5	3	4	3	-5	-13	-10	-4	-6	-8	-18	-21	14 13 9 12	
18000	6	1	4	9	5	-7	-29	-14	-6	-17	-15	-31	-35	16 15 10 14	
														22 22 12 21	
FORT ERAGG/FCFE	TC														
5000	-12	-5	-4	-4	-7	-17	11	6	4	3	6	0	-2	641 N.M.I.	
10000	-22	-16	-5	-7	-12	-25	21	16	5	6	11	2	0	11 11 8 10	
18000	-41	-30	-4	-20	-23	-43	36	25	4	17	18	5	3	12 13 8 12	
														18 18 10 16	
FORT ERAGG/FCFE	TC														
5000	-6	-4	-2	-1	-4	-12	5	3	2	1	2	-4	-5	422 N.M.I.	
10000	-6	-7	-2	-2	-5	-15	3	3	2	2	2	-5	-7	11 11 8 11	
18000	-17	-10	-3	-9	-5	-21	3	1	3	5	3	-7	-9	13 13 8 12	
														18 18 10 16	
FORT ERAGG/FCFE	TC														
5000	-3	-3	-4	-2	-4	-10	2	2	4	2	2	-2	-4	1053 N.M.I.	
10000	3	-1	-3	-2	-1	-9	-5	0	3	2	0	-6	-8	9 8 6 8	
18000	6	0	-2	-2	0	-8	-13	-11	2	0	-4	-14	-17	10 5 7 9	
														13 13 7 11	
FORT ERAGG/FCFE	TC														
5000	-2	-2	-5	-3	-4	-10	1	2	5	3	2	-2	-3	1179 N.M.I.	
10000	5	0	-3	-1	0	-8	-7	-2	2	1	-1	-8	-9	8 6 6 8	
18000	11	10	-1	0	3	-6	-17	-15	1	-1	-7	-18	-20	10 5 7 8	
														13 12 7 11	

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**A--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN GRATES HEADINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS																STANDARD DEVIATION			
	DIRECT						RETURN													
	JAN	APR	JUL	OCT	DEC	APR	JAN	APR	JUL	OCT	DEC	APR	JAN	APR	JUL	OCT				
FCMT ELSTIS	TC	TC	GUANTANAMO BAY																1097 M.MI.	
5000	-3	-3	-2	-3	-5	-10												9	6	8
10000	0	-2	-3	-3	-5	-10												11	10	9
10000	-1	0	-2	-3	-5	-11												14	14	12
FCMT ELSTIS	TC	TC	GUANTANAMO CITY																1595 M.MI.	
5000	-4	-3	-1	0	-2	-7												8	7	7
10000	-6	-7	-2	-3	-5	-10												8	8	7
10000	-15	-13	-2	-9	-10	-21												11	11	10
FCMT ELSTIS	TC	TC	HARPCN AFB																1001 M.MI.	
5000	10	7	9	0	6	1												13	12	10
10000	20	14	14	14	14	6												14	14	10
10000	32	15	17	25	22	11												20	15	12
FCMT ELSTIS	TC	TC	MAVANA																954 M.MI.	
5000	-5	-3	-2	-4	-10	-12												10	9	9
10000	-2	-3	-4	-6	-10	-15												11	11	7
10000	-10	-11	-4	-10	-10	-23												15	15	13
FCMT ELSTIS	TC	TC	MCMESTEAD AFB																784 M.MI.	
5000	-5	-4	-2	-2	-4	-10												10	10	10
10000	-6	-7	-3	-4	-6	-13												12	12	11
10000	-17	-11	-4	-10	-10	-24												17	16	15
FLMT ELSTIS	TC	TC	MANTEN AFB																429 M.MI.	
5000	-5	-3	-3	-3	-6	-13												12	12	12
10000	-17	-14	-5	-6	-10	-22												14	14	13
10000	-34	-21	-7	-10	-15	-34												20	20	19
FCMT ELSTIS	TC	TC	JACKSONVILLE																526 M.MI.	
5000	-6	-6	-3	-3	-5	-13												12	11	11
10000	-15	-13	-4	-5	-5	-15												14	14	13
10000	-31	-19	-6	-17	-17	-31												19	19	18
FLMT ELSTIS	TC	TC	KEY WEST																857 M.MI.	
5000	-6	-3	-3	-2	-4	-11												10	10	9
10000	-5	-3	-3	-4	-6	-13												12	11	7
10000	-15	-12	-4	-11	-11	-24												16	16	14
FLMT ELSTIS	TC	TC	MINLEY AFB																679 M.MI.	
5000	11	0	3	3	6	-1												12	12	12
10000	24	14	7	7	11	4												15	14	9
10000	32	26	10	13	16	7												19	15	10

ONCE AGAIN--COMPUTED FOR A 120-KT AIRSPEED.

***--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

PIALS SIGA CENCTES HEADINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E S L I V A L E A Y H E A D I N G S												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC				
FCAT ELSTIS	TC	TC	TC	KINGSTON	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-2	-3	-3	-2	-3	-6	-10	1	3	3	1	2	2	2	3	1215 N.M.I.
10000	0	-4	-2	-3	-3	-6	-10	-2	2	2	2	2	1	1	0	6
18000	-4	-2	-2	-6	-4	-11	-13	-5	-4	2	3	3	0	0	9	6
FCAT ELSTIS	TC	TC	TC	LCRINE AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	654 N.M.I.
5000	7	5	5	6	5	-2	-4	-9	-6	-6	-7	-7	-7	-7	-7	13
10000	13	10	10	10	10	1	-1	-20	-14	-10	-13	-14	-14	-14	-14	10
18000	24	12	11	16	15	3	0	-30	-22	-16	-26	-25	-25	-25	-25	11
FCAT ELSTIS	TC	TC	TC	PARAGUA	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1641 N.M.I.
5000	-2	-3	-1	0	-2	-6	-8	0	3	1	0	0	0	0	0	7
10000	-5	-5	-1	-2	-3	-6	-10	3	3	1	2	2	2	2	2	8
18000	-11	-7	-2	-7	-7	-14	-16	3	2	1	5	2	2	2	2	11
FCAT ELSTIS	TC	TC	TC	PECELLIA	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1916 N.M.I.
5000	0	-3	-2	-1	-2	-6	-7	-1	3	2	1	1	1	1	1	6
10000	0	-3	-3	-2	-2	-7	-8	-2	2	2	2	0	0	0	0	7
18000	0	0	-2	-4	-2	-6	-9	-6	-4	1	2	-1	-1	-1	-1	10
FCAT ELSTIS	TC	TC	TC	NARSARSSUK	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1805 N.M.I.
5000	6	2	5	6	4	-1	-3	-8	-4	-6	-7	-7	-7	-7	-7	10
10000	11	6	7	5	6	1	0	-16	-6	-9	-11	-11	-11	-11	-11	12
18000	24	10	10	15	15	3	1	-29	-16	-14	-23	-20	-20	-20	-20	16
FCAT ELSTIS	TC	TC	TC	NEW ORLEANS	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	816 N.M.I.
5000	-14	-9	-9	-4	-3	-14	-18	11	6	4	4	6	6	6	6	11
10000	-23	-18	-6	-7	-13	-23	-25	20	10	6	7	11	11	11	11	12
18000	-41	-26	-6	-21	-25	-36	-42	35	22	5	17	17	17	17	17	10
FCAT ELSTIS	TC	TC	TC	PATNICK AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	626 N.M.I.
5000	-6	-5	-4	-2	-4	-11	-13	5	4	2	1	2	2	2	2	11
10000	-11	-5	-3	-4	-7	-15	-17	5	6	3	3	4	4	4	4	13
18000	-22	-14	-4	-15	-15	-25	-28	8	4	3	8	5	5	5	5	10
FCAT ELSTIS	TC	TC	TC	PLANT AL PFRANCE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1194 N.M.I.
5000	-2	-3	-3	-3	-3	-6	-10	1	2	2	2	2	2	2	2	9
10000	4	-3	-2	-2	-2	-6	-9	-5	0	2	2	0	0	0	0	10
18000	4	2	-2	-4	-1	-6	-10	-12	-5	1	1	-3	-3	-3	-3	14
FCAT ELSTIS	TC	TC	TC	RAMEY AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	1278 N.M.I.
5000	-1	-2	-4	-2	-3	-6	-9	5	1	4	2	2	2	2	2	9
10000	5	-1	-2	-1	0	-7	-9	-7	-1	2	1	-1	-1	-1	-1	10
18000	6	7	-1	-2	1	-5	-7	-10	-13	5	5	-16	-9	-9	-9	13

HEADINGS--COMPUTED FOR 100-KT AIRSPEED.

HEADINGS--ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN INDICATES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E C L I V A L E A T H E A C B I N D S O												STANDARD DEVIATION					
	DIRECT						RETURN											
	JAN	APR	JUL	OCT	00ASC	A75	A85	JAN	APR	JUL	OCT	00ASC	A75	A85	JAN	APR	JUL	OCT
FCMT ELSTIS	TC																	
SGCC	-4	-1	J	-2	-6	-7	0	3	1	0	0	-3	-4	7	7	1739 N.MI.		
10GCL	-3	-1	-2	-3	-6	-9	1	3	1	2	1	-2	-3	8	7	5	6	
10GCG	-7	-5	-2	-3	-11	-13	0	0	1	4	1	-4	-6	10	10	6	9	
FCMT ELSTIS	TO																	
SGCC	-3	-1	0	-2	-7	-8	2	2	1	0	1	-3	-4	8	7	1611 N.MI.		
10GCL	-7	-2	-3	-3	-10	-11	5	5	1	2	2	-1	-2	8	8	5	7	
10GCG	-14	-11	-2	-5	-17	-19	8	5	2	0	4	-1	-2	11	11	6	10	
FCMT ELSTIS	TC																	
SGCC	-2	-4	-2	-3	-6	-10	1	2	3	2	2	-3	-4	9	8	1231 N.MI.		
10GCL	4	-2	-2	-1	-7	-9	-7	0	2	1	-1	-7	-9	10	10	7	9	
10GCG	5	-1	-3	0	-7	-8	-14	-11	1	0	-4	-15	-17	14	13	7	11	
FCMT ELSTIS	TC																	
SGCC	-10	-7	-3	-6	-14	-16	8	6	3	3	4	-2	-4	13	12	312 N.MI.		
10GCL	-15	-16	-8	-12	-22	-25	14	12	6	5	8	0	-2	15	15	10	14	
10GCG	-35	-24	-8	-22	-38	-42	26	14	7	16	14	2	0	21	21	12	20	
FCMT ELSTIS	TC																	
SGCC	3	1	2	2	-3	-4	-4	-2	-3	-5	-4	-10	-11	9	9	1940 N.MI.		
10GCL	6	2	3	3	-2	-4	-10	-5	-5	-7	-7	-14	-16	11	10	8	10	
10GCG	11	5	4	4	-2	-4	-21	-11	-9	-16	-14	-24	-26	14	14	10	14	
FCMT ELSTIS	TC																	
SGCC	-3	-4	-1	-2	-7	-8	1	3	1	0	1	-3	-4	8	7	1553 N.MI.		
10GCL	-7	-6	-2	-3	-10	-11	4	4	1	2	2	-2	-3	8	8	5	7	
10GCG	-15	-10	-2	-8	-16	-18	6	4	2	5	3	-2	-3	11	11	6	10	
FCMT ELSTIS	TC																	
SGCC	6	5	5	6	-2	-4	-11	-7	-5	-7	-8	-16	-19	15	14	307 N.MI.		
10GCL	15	13	8	10	1	-1	-22	-17	-10	-12	-15	-26	-29	17	17	11	14	
10GCG	25	13	11	15	2	0	-40	-22	-14	-26	-25	-41	-45	23	23	13	22	
FCMT ELSTIS	TC																	
SGCC	-1	-2	-4	-2	-7	-8	0	2	4	2	2	-2	-3	7	7	1610 N.MI.		
10GCL	2	-2	-4	-2	-7	-8	-4	0	3	2	0	-5	-6	9	8	6	7	
10GCG	5	4	-2	-3	-6	-7	-11	-5	1	0	-4	-12	-14	11	11	6	9	
FCMT ELSTIS	TC																	
SGCC	7	4	5	6	0	-2	-9	-6	-6	-7	-7	-14	-15	10	10	1711 N.MI.		
10GCL	14	8	7	9	5	2	-19	-11	-9	-11	-13	-20	-22	11	11	8	10	
10GCG	23	11	10	17	14	5	-35	-15	-14	-24	-22	-34	-37	15	15	10	15	

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

00A--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
PINAL SIGN GIVES HEADINGS.

EQUIVALENT HEADINGS AND STANGARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

WEIGHT IN FEET	EQUIVALENT HEADINGS												STANGARC DEVIATION					
	DIRECT						RETURN						JAN	APR	JUL	OCT		
	JAN	APR	JUL	00ASC	A75	A85	JAN	APR	JUL	00ASC	A75	A85						
FLAT FLCHER	TC	GLANTANAPC RAY												878 N.M.I.				
5000	-4	-2	-4	-2	-4	-5	-10	3	3	5	2	3	-2	-3	9	8	6	8
10000	4	-2	-1	-6	-6			-5	0	4	1	0	-7	-8	10	5	6	8
15000	12	13	-2	1	4	-3	-5	-17	-16	2	-3	-7	-19	-21	13	13	7	11
FLAT FLCHER	TC	GLATAMALC CITY												1039 N.M.I.				
5000	-3	-2	-2	U	-2	-3	-8	2	3	2	0	1	-2	-4	8	8	5	7
10000	-5	-4	-2	-2	-4	-5	-10	9	4	2	2	2	-1	-3	8	8	6	7
15000	-10	-3	0	-4	-3	-12	-14	0	3	0	3	2	-3	-5	12	11	6	9
FLAT FLCHER	TC	HARPEN AFE												1600 N.M.I.				
5000	10	7	7	7	7	1	0	-12	-6	-7	-7	-9	-15	-17	10	10	7	9
10000	15	14	10	11	12	6	4	-23	-17	-11	-13	-16	-24	-26	12	11	8	10
15000	32	15	13	22	22	10	8	-41	-26	-16	-27	-27	-39	-43	16	16	10	15
FLAT FLCHER	TC	HAYANA												519 N.M.I.				
5000	-4	-3	-4	-3	-4	-10	-11	4	3	4	2	3	-2	-4	10	10	7	9
10000	0	-3	-1	-2	-6	-10		-1	-1	3	1	0	-6	-8	11	11	7	10
15000	3	5	-1	U	0	-7	-9	-11	-11	1	-2	-5	-15	-18	15	15	8	13
FLAT FLCHER	TC	HOMESTEAL AFE												436 N.M.I.				
5000	-3	U	-2	U	-2	-8	-10	2	0	2	0	0	-5	-7	11	10	7	10
10000	3	4	-1	U	1	-5	-7	-7	-6	1	0	-3	-11	-13	12	12	8	11
15000	14	14	U	5	3	-2	-4	-21	-15	0	-7	-11	-23	-27	16	16	9	14
FLAT FLCHER	TC	HUNTER AFE												225 N.M.I.				
5000	6	0	4	4	-1	-2		-10	-5	-4	-4	-7	-15	-16	12	12	8	11
10000	41	47	5	5	11	1	5	-21	-17	-4	-6	-12	-22	-25	14	14	9	13
15000	37	20	5	16	20	2	3	-34	-31	-5	-19	-22	-34	-43	19	15	10	17
FLAT FLCHER	TC	JACKSONVILLE												201 N.M.I.				
5000	6	7	2	4	4	-2	-4	-7	-7	-2	-4	-5	-13	-15	12	12	8	11
10000	17	14	3	4	8	0	-2	-15	-15	-3	-5	-10	-20	-23	14	13	9	13
15000	33	27	4	10	18	5	2	-37	-30	-4	-17	-21	-37	-41	19	15	10	17
FLAT FLCHER	TC	KEY WEST												445 N.M.I.				
5000	-4	-2	-3	-1	-3	-5	-11	3	1	3	1	2	-4	-5	11	10	7	9
10000	4	4	-2	0	0	-7	-8	-4	-3	2	0	-1	-6	-10	12	11	8	10
15000	7	5	0	2	3	-3	-7	-15	-14	0	-4	-7	-18	-21	16	15	9	13
FLAT FLCHER	TC	MALLEY AFE												1059 N.M.I.				
5000	5	4	4	5	6	1		-10	-10	-4	-3	-7	-14	-15	10	10	7	10
10000	20	16	0	0	11	4	2	-21	-15	-6	-7	-13	-22	-24	12	11	7	10
15000	35	25	1	17	20	2	0	-30	-31	-7	-19	-23	-37	-40	16	15	8	13

ONCE IN A WHILE--COMPUTED FOR A 125-KT AIRSPEED.

NOTE--GREAT CIRCLE EQUIVALENT HEADINGS AND STANGARC DEVIATION FOR INDICATED ALTITUDES FOR INDICATED ALTITUDES.

EQUIVALENT HEADINGS ARE STANGARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET		E S L I Y A L E A T M E A F B I A D S O												STANGARE DEVIATION			
		DIRECT						RETURN						JAN	APR	JUL	OCT
		-0A	APR	JUL	OCT	0000C	075	0000C	075	0000C	075	0000C	075	0000C	075	0000C	075
FCRT PLCKER	TC																
5000	-4	-3	-5	-3	KINGSTON	-4	-5	-11									
10000	6	6	-4	-2		-2	-7	-9									
18000	8	9	-2	0		2	-4	-6									
FCRT PLCKER	TC																
5000	8	6	5	5	LCRINS AFB	5	5	5									
10000	16	11	8	10		10	10	10									
18000	27	14	10	10		16	16	16									
FCRT PLCKER	TC																
5000	-2	-4	-3	0	MANAGUA	-3	-7	-9									
10000	-3	-3	-3	-2		-3	-8	-9									
18000	-4	-2	0	-3		-3	-9	-10									
FCRT PLCKER	TC																
5000	10	7	4	7	MCGUIRE AFB	4	5	5									
10000	16	14	7	7		11	11	11									
18000	30	18	8	17		16	16	16									
FCRT PLCKER	TC																
5000	6	-5	-4	-2	MEDELLIA	-3	-7	-8									
10000	6	-2	-4	-3		-3	-8	-9									
18000	3	3	-3	-1		6	-5	-6									
FCRT PLCKER	TC																
5000	6	3	4	4	NEW CUPERTINO	4	5	5									
10000	15	12	6	6		5	5	5									
18000	25	14	6	15		12	12	12									
FCRT PLCKER	TC																
5000	-10	-8	-3	-4	NEW CALEGAS	-4	-14	-16									
10000	-20	-10	-3	-4		-11	-21	-24									
18000	-30	-30	0	-10		-21	-30	-41									
FCRT PLCKER	TC																
5000	1	3	2	2	PATRICK AFB	2	2	2									
10000	11	5	1	2		12	12	12									
18000	24	11	3	10		12	12	12									
FCRT PLCKER	TC																
5000	-4	-2	-5	-3	PORT AL PRINCE	-4	-5	-10									
10000	3	1	-4	-2		-1	-7	-8									
18000	13	13	-2	1		4	-3	-5									

HEADINGS--COMPUTED FOR A 140-KT AIRSPEED.

00A--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

PLANS SICA GIVES HEADINGS.

EQUIVALENT HEADINGS AND STANGAPC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E S L I V A L S A I M E A D B I N D S O																		STANGAPC DEVIATION
	DIRECT						RETURN												
	-AP	APR	JUL	OCT	0000L	A75	A05	JAN	APR	JUL	OCT	0000C	A75	A05	JAN	APR	JUL	OCT	
FCMT FLCKER	TC																		
SUCC	-4	-2	-6	-3	-4	-5	-10	3	2	6	3	3	-1	-2	0	7	5	7	
1000C	4	2	-4	-1	0	-6	-7	-5	-3	4	1	0	-7	-8	9	8	6	8	
1800C	14	15	-2	2	5	-2	-4	-10	-10	2	-3	-8	-19	-22	12	11	7	9	
FLMT FLCKER	TC																		
SUCC	-1	-5	-3	0	-3	-7	-8	0	4	3	0	1	-2	-3	7	7	5	6	
1000C	-2	-2	-3	-2	-3	-7	-8	1	2	3	2	2	-2	-3	7	7	5	6	
1800C	-1	0	-1	-2	-1	-7	-8	-2	-3	1	2	0	-6	-8	10	10	6	8	
FCMT FLCKER	TC																		
SUCC	-2	-3	-2	0	-2	-7	-8	2	2	2	0	1	-2	-4	0	0	5	7	
1000C	-4	-2	-2	-2	-3	-8	-10	3	2	2	2	2	-2	-3	0	0	6	7	
1800C	-6	-5	0	-4	-4	-11	-13	4	2	0	3	1	-4	-5	11	11	6	9	
FCMT FLCKER	TC																		
SUCC	-4	-2	-5	-3	-4	-6	-10	3	2	6	3	3	-1	-2	0	7	5	7	
1000C	3	2	-4	-1	-1	-6	-7	-5	-3	4	1	0	-7	-8	9	8	6	8	
1800C	14	14	-2	1	5	-3	-4	-17	-17	2	-3	-8	-15	-21	12	12	7	10	
FCMT FLCKER	TC																		
SUCC	11	4	5	3	6	-1	-2	-11	-5	-4	-4	-7	-15	-17	12	12	0	11	
1000C	15	5	5	10	10	1	0	-21	-17	-5	-6	-12	-22	-25	14	14	9	13	
1800C	33	23	5	17	17	5	2	-39	-28	-5	-19	-21	-38	-42	19	19	10	18	
FCMT FLCKER	TC																		
SUCC	-3	-4	-3	0	-3	-6	-9	2	4	3	0	2	-2	-3	0	0	5	7	
1000C	-4	-3	-3	-2	-4	-6	-10	3	3	3	2	2	-2	-3	0	0	6	7	
1800C	-6	-3	0	-3	-3	-10	-11	2	0	0	2	0	-5	-6	11	11	6	9	
FCMT FLCKER	TC																		
SUCC	5	7	4	3	6	0	-2	-11	-8	-4	-5	-7	-14	-16	11	11	0	10	
1000C	17	14	7	8	11	2	1	-22	-17	-8	-9	-14	-23	-26	13	13	9	12	
1800C	25	17	9	10	16	6	3	-41	-25	-11	-23	-24	-38	-42	18	18	10	17	
FCMT FLCKER	TC																		
SUCC	-4	-3	-7	-4	-5	-5	-10	3	2	7	4	4	0	-1	7	6	5	6	
1000C	0	0	-7	-3	-3	-6	-9	-1	0	7	3	2	-3	-4	7	7	5	7	
1800C	5	5	-3	0	2	-4	-5	-12	-12	4	0	-4	-13	-16	10	10	6	8	
FRCEISTER	TC																		
SUCC	3	0	-1	0	0	-6	-10	-4	0	0	0	-1	-9	-11	12	12	11	12	
1000C	0	0	0	2	0	-6	-10	-3	-1	-1	-4	-3	-12	-14	14	14	12	13	
1800C	-3	-1	0	1	-1	-13	-16	-2	-2	-3	-7	-4	-16	-19	19	19	15	19	

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
+--SIN GIVES HEADINGS.

EQUIVALENT HEADINGS AND STANCARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E C L I V A L E N T H E A D I N D S												STANDARD DEVIATION				
	DIRECT						RETURN										
	JAN	APR	JUL	OCT	APR	AUG	JAN	APR	JUL	OCT	APR	AUG	JAN	APR	JUL	OCT	
FRCEISPER	TC	TC	HARMON AFE														
50CC	2	0	0	0	-7	-9	-4	C	0	-1	-2	-9	-11	12	11	10	11
100CC	C	0	2	C	-8	-10	-3	-1	-2	-5	-3	-12	-14	14	13	11	13
180CC	-3	-2	1	0	-12	-15	-4	-1	-5	-8	-5	-17	-19	10	10	14	10
FRONISPER	TC	TC	HUNTER AAF														
50CC	-3	-1	-2	-3	-5	-10	0	C	1	2	0	-4	-6	9	9	7	0
100CC	-7	-3	-2	-4	-11	-12	1	C	0	2	0	-5	-6	10	10	7	9
180CC	-17	-7	-4	-11	-15	-21	3	C	0	3	1	-7	-9	14	13	9	13
FRCEISPER	TC	TC	KEFLAVIN														
50CC	-1	-1	-3	-3	-6	-10	0	1	3	2	1	-4	-5	10	9	7	0
100CC	1	4	0	0	-7	-9	-3	-6	0	-2	-3	-11	-13	13	12	10	12
180CC	7	10	3	8	-4	-6	-12	-14	-5	-12	-11	-22	-25	10	17	13	16
FRCEISPER	TC	TC	KINLEY AFE														
50CC	C	-1	-2	-1	-7	-8	-2	C	1	0	0	-6	-8	9	9	7	9
100CC	-2	-2	-1	-2	-5	-10	-3	C	0	-1	-1	-8	-10	11	11	8	10
180CC	-5	-5	-1	-5	-14	-17	-4	-3	-3	-2	-4	-12	-14	15	14	10	13
FRCEISPER	TC	TC	LCKING AFE														
50CC	0	-1	-1	-1	-8	-10	-2	C	0	0	-1	-8	-10	11	11	10	11
100CC	-2	0	0	-1	-5	-11	-1	-1	0	-1	-1	-9	-11	13	12	10	12
180CC	-5	-4	-1	-4	-16	-19	0	C	-3	-3	-2	-13	-15	17	17	13	17
FRONISPER	TC	TC	MCGLIRE AFE														
50CC	-1	-1	-2	-3	-5	-10	-1	C	1	1	0	-6	-8	10	10	8	9
100CC	-5	-1	-2	-3	-10	-12	0	C	0	C	C	-7	-9	12	11	9	10
180CC	-14	-5	-3	-9	-16	-21	2	C	-1	0	0	-9	-12	16	15	11	15
FRCEISPER	TC	TC	NARSARSSIAH														
50CC	2	-1	-1	-1	-7	-9	-2	C	1	0	0	-7	-9	10	10	8	9
100CC	4	3	0	3	-6	-5	-6	-5	-1	-4	-4	-14	-16	15	14	12	14
180CC	C	7	4	9	-5	-8	-10	-11	-6	-12	-10	-23	-26	19	19	16	19
FRCEISPER	TC	TC	NEW CUMBERLAND														
50CC	-1	-1	-2	-4	-5	-10	0	C	1	2	0	-5	-7	10	10	8	9
100CC	-5	-1	-2	-4	-10	-12	1	C	0	1	0	-6	-8	11	11	9	10
180CC	-14	-6	-4	-9	-16	-21	3	C	0	1	0	-9	-11	15	15	11	15
FRONISPER	TC	TC	PFEISTNICH														
50CC	1	0	-1	-1	-7	-8	-4	-1	0	0	-1	-7	-9	10	9	7	9
100CC	5	5	1	2	-4	-5	-8	-7	-2	-4	-6	-13	-15	12	11	9	11
180CC	5	11	5	8	-1	-4	-16	-16	-8	-13	-13	-24	-26	16	15	12	15

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**--LINES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN LINES HEADINGS.

EQUIVALENT HEADWINDS AND STANARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS														STANARC DEVIATION			
	DIRECT				RETURN													
	JAN	APR	JUL	OCT	**AFC	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85	JAN	APR	JUL	OCT
FACEISPER	TC				SPAN AFE													
5000	-2	-1	-2	-4	-3	-8	-10											
10000	-7	-3	-2	-4	-4	-11	-12											
18000	-17	-7	-4	-11	-10	-15	-22											
FACEISPER	TC				SCNCRESTACF													
5000	2	1	-1	2	3	-5	-6											
10000	6	5	1	3	3	-5	-7											
18000	5	10	4	10	8	-4	-7											
FACEISPER	TC				TPULE													
5000	1	0	0	3	3	-5	-6											
10000	3	1	3	3	2	-4	-6											
18000	6	1	2	3	2	-7	-10											
FACEISPER	TC				TRCPSC													
5000	1	2	0	2	3	-3	-5											
10000	5	5	1	4	3	-2	-3											
18000	5	11	3	8	7	0	-2											
FACEISPER	TC				WESTOVER AFE													
5000	1	-1	-2	-2	-2	-8	-10											
10000	4	0	-1	-3	-2	-10	-12											
18000	-12	-5	-2	-7	-7	-17	-20											
GCUSE AB	TC				WAPACN AFE													
5000	1	0	0	2	3	-5	-12											
10000	-1	-2	1	2	3	-11	-14											
18000	-5	-5	1	-3	-3	-16	-22											
GCUSE AB	TC				MCWESTEAL AFE													
5000	-7	-5	-5	-5	-6	-12	-13											
10000	-14	-11	-7	-5	-10	-17	-15											
18000	-26	-17	-10	-19	-16	-28	-31											
GCUSE AB	TC				MUNTER AFE													
5000	-6	-5	-5	-6	-6	-13	-14											
10000	-16	-11	-8	-11	-12	-20	-22											
18000	-33	-15	-13	-23	-21	-33	-36											
GCUSE AB	TC				JACKSONVILLE													
5000	-6	-5	-5	-6	-6	-13	-14											
10000	-17	-11	-8	-10	-12	-15	-21											
18000	-33	-15	-13	-22	-21	-33	-36											

*HEADWINDS--COMPUTED FOR A 120-MT AIRSPEED.

**A--LENTHES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
+PLUS SIGN LENTHES HEADWINDS.

EQUIVALENT HEADINGS AND STANGARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E G L I V A L E N T H E A D I N G S												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT
GGCSE AE																
5000	5	1	1	4	2	-4	-6	-7	-1	-2	-5	-4	-4	-11	-13	1315 N.MI.
10000	10	6	5	7	6	-1	-3	-13	-6	-6	-9	-9	-9	-18	-20	11 1C 9 11
18000	18	12	8	14	12	1	-1	-23	-17	-11	-19	-18	-18	-30	-33	14 13 11 12
ECOSE AE																
5000	-7	-5	-5	-5	-6	-11	-13	5	4	4	4	4	4	-1	-2	1977 N.MI.
10000	-14	-10	-7	-9	-10	-17	-18	9	7	5	6	6	6	0	0	9 9 6 8
18000	-26	-17	-10	-19	-18	-26	-31	15	6	7	13	10	10	2	0	10 10 7 9
GGCSE AE																
5000	-3	-4	-4	-3	-4	-11	-13	0	2	3	1	1	1	-5	-7	1270 N.MI.
10000	-6	-4	-4	-5	-7	-15	-17	1	4	2	1	2	2	-5	-7	12 11 8 10
18000	-17	-12	-6	-14	-12	-23	-26	0	2	2	4	2	2	-6	-10	13 13 9 12
ECOSE AE																
5000	8	4	8	10	7	0	-1	-12	-6	-9	-12	-10	-10	-18	-20	1618 N.MI.
10000	14	6	11	14	10	2	0	-17	-5	-13	-17	-14	-14	-23	-25	12 11 9 11
18000	16	9	16	19	15	4	1	-27	-15	-20	-26	-22	-22	-32	-36	14 12 9 12
GGCSE AE																
5000	-8	-4	-7	-8	-7	-16	-18	5	2	6	7	5	5	-3	-6	477 N.MI.
10000	-16	-7	-9	-13	-12	-22	-25	12	5	7	9	8	8	-2	-4	15 14 11 13
18000	-26	-15	-16	-24	-21	-35	-39	20	10	11	16	14	14	0	-3	17 16 13 15
GGCSE AE																
5000	-8	-5	-7	-8	-6	-15	-17	5	3	6	6	5	5	-2	-4	984 N.MI.
10000	-17	-10	-9	-13	-12	-21	-24	12	7	7	10	8	8	0	-1	13 12 9 11
18000	-32	-18	-16	-25	-22	-36	-39	21	10	11	17	14	14	2	0	14 14 10 13
GGCSE AE																
5000	7	1	4	7	4	-3	-5	-3	-2	-5	-8	-6	-6	-15	-17	675 N.MI.
10000	11	4	6	8	7	-2	-5	-13	-6	-8	-10	-10	-10	-20	-22	13 12 11 13
18000	15	10	9	14	12	0	-4	-23	-14	-12	-19	-17	-17	-31	-35	16 15 13 15
GGCSE AE																
5000	-5	-5	-7	-8	-6	-15	-17	6	4	6	7	5	5	-1	-3	1031 N.MI.
10000	-12	-10	-10	-14	-12	-22	-25	13	7	8	11	9	9	1	-1	13 12 9 11
18000	-34	-18	-17	-26	-24	-36	-40	23	11	12	18	15	15	3	1	14 14 10 13
GGCSE AE																
5000	-10	-6	-6	-7	-6	-13	-15	8	5	5	6	5	5	0	-1	1903 N.MI.
10000	-20	-11	-9	-11	-10	-20	-22	15	5	8	9	10	10	2	1	10 9 7 8
18000	-35	-20	-13	-23	-22	-33	-36	25	12	9	17	14	14	5	3	10 10 8 10

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.
--CENTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN LENGTHS HEADINGS.

EQUIVALENT HEADINGS AND STANARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS														STANARC DEVIATION			
	DIRECT						RETURN											
	JAN	APR	JUL	OCT	ASC	75	JAN	APR	JUL	OCT	ASO	75	AB5					
GCCSE AE 5000 10000 18000	PATRICK AFB														1748 N.M.I.			
	-8	-5	-5	-5	-6	-12	-14	5	4	5	4	4	-1	-2	10	5	7	9
	-16	-11	-7	-9	-11	-18	-20	10	8	6	7	7	0	0	11	11	8	10
GCCSE AE 5000 10000 18000	PRESTON														1900 N.M.I.			
	11	3	5	8	6	6	-2	-14	-5	-6	-10	-9	-17	-19	12	11	9	11
	17	8	10	12	11	3	1	-20	-10	-11	-14	-14	-22	-25	13	12	10	12
GCCSE AE 5000 10000 18000	SPAN AFB														1440 N.M.I.			
	-5	-2	-6	-7	-7	-14	-15	6	4	5	6	5	-1	-2	11	10	8	9
	-16	-11	-9	-11	-12	-20	-22	12	8	7	9	8	1	0	12	12	9	11
GCCSE AE 5000 10000 18000	SCNCRESTFCP														868 N.M.I.			
	3	1	2	4	2	-4	-6	-4	-2	-3	-5	-4	-11	-13	11	11	10	11
	6	2	3	3	3	-5	-7	-8	-3	-4	-5	-5	-14	-16	14	13	11	13
GCCSE AE 5000 10000 18000	TFOLE														1406 N.M.I.			
	1	0	2	1	1	-5	-6	0	-1	0	-3	-2	-7	-8	8	8	8	8
	2	1	1	1	1	-7	-9	-4	-1	-3	-2	-3	-10	-11	11	10	9	10
GCCSE AE 5000 10000 18000	WESTOVER AFB														824 N.M.I.			
	-8	-5	-7	-8	-8	-16	-18	5	3	6	6	5	-3	-5	14	13	10	12
	-17	-9	-9	-13	-12	-22	-24	12	6	7	9	8	0	-3	15	15	11	14
GLANTANAPC EAY	GLANTANAPC CITY														937 N.M.I.			
	10	6	5	8	5	4	3	-10	-6	-9	-7	-9	-12	-13	7	6	4	6
	2	2	11	5	5	0	0	-5	-2	-10	-4	-6	-11	-12	7	7	6	6
GLANTANAPC EAY	FARMON AFB														1896 N.M.I.			
	4	5	5	5	4	0	-2	-6	-7	-6	-4	-6	-12	-13	9	8	6	8
	7	8	6	11	7	0	-1	-20	-16	-9	-16	-15	-24	-26	10	10	7	9
GLANTANAPC EAY	MCVANA														445 N.M.I.			
	5	5	10	6	7	1	0	-6	-5	-9	-6	-8	-13	-14	9	8	6	8
	3	1	9	5	4	-1	-2	-3	-1	-9	-4	-5	-11	-12	9	5	7	8
GLANTANAPC EAY																		
	-6	-11	0	1	-2	-11	-14	0	11	-5	-1	1	-6	-7	12	12	7	9

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

★--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN LEAD HEADINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E C L I V A L E N T H E A D I N G S												STANDARD DEVIATION					
	DIRECT				RETURN													
	JAN	APR	JUL	OCT	00AS0	075	AB5	JAN	APR	JUL	OCT	00AS0	075	AB5	JAN	APR	JUL	OCT
GUANTANAPC EAY	TC																	
5000	5	8	5	5	5	C	0	-5	-5	-7	-5	-6	-11	-13	9	8	443 N.MI.	
10000	-1	C	7	4	2	-3	-5	1	-1	-7	-4	-3	-9	-11	10	9	6	
18000	-11	-12	5	1	-3	-13	-16	10	11	-4	-1	2	-5	-7	13	12	7	
GUANTANAPC EAY	TC																	
5000	3	4	2	2	3	-2	-3	-4	-3	-4	-2	-4	-9	-10	9	8	795 N.MI.	
10000	-4	-1	3	2	C	-6	-8	3	C	-3	-2	-1	-7	-9	10	10	6	
18000	-14	-12	2	C	-5	-15	-18	5	6	-2	-1	1	-5	-7	14	13	7	
GUANTANAPC EAY	TC																	
5000	4	3	5	3	3	-1	-2	-4	-3	-5	-3	-4	-10	-11	9	8	723 N.MI.	
10000	-4	-1	4	3	C	-6	-8	3	C	-4	-3	-1	-8	-9	10	10	6	
18000	-14	-13	3	0	-5	-16	-18	10	5	-3	0	2	-5	-7	13	13	7	
GUANTANAPC EAY	TC																	
5000	C	5	9	6	6	1	0	-6	-5	-8	-6	-7	-12	-13	9	8	463 N.MI.	
10000	C	C	8	4	3	-3	-5	0	C	-8	-4	-4	-10	-11	10	5	6	
18000	-11	-12	5	1	-3	-13	-16	10	11	-5	-1	1	-6	-8	13	12	7	
GUANTANAPC EAY	TC																	
5000	2	6	3	1	3	-2	-3	-3	-6	-3	-1	-4	-9	-10	9	8	935 N.MI.	
10000	C	8	2	4	3	-2	-4	-1	-5	-2	-4	-4	-11	-13	11	10	6	
18000	2	8	3	7	4	-2	-4	-7	-13	-3	-7	-7	-15	-18	14	13	7	
GUANTANAPC EAY	TC																	
5000	5	5	6	5	5	C	0	-9	-2	-6	-5	-6	-11	-12	8	7	170 N.MI.	
10000	4	C	5	1	2	-3	-4	-4	C	-6	-1	-3	-9	-11	9	5	6	
18000	2	-1	4	C	1	-5	-7	-2	C	-3	0	-2	-8	-10	12	12	7	
GUANTANAPC EAY	TC																	
5000	C	-2	-2	0	-1	-4	-4	-1	2	2	0	0	-1	-2	4	3	1923 N.MI.	
10000	C	-1	-1	C	C	-3	-4	-2	1	0	0	0	-3	-4	4	4	3	
18000	2	1	0	C	C	-3	-4	-3	-1	0	C	-1	-5	-6	7	6	5	
GUANTANAPC EAY	TC																	
5000	3	3	3	2	2	-2	-4	-4	-5	-4	-3	-5	-10	-11	9	9	1662 N.MI.	
10000	C	6	3	4	3	-3	-4	-5	-5	-4	-5	-6	-12	-14	10	10	6	
18000	C	0	3	7	2	-5	-7	-15	-5	-5	-12	-10	-19	-21	14	13	8	
GUANTANAPC EAY	TC																	
5000	11	2	7	8	6	2	1	-10	-2	-7	-7	-7	-11	-12	7	6	790 N.MI.	
10000	5	2	9	4	5	1	0	-5	-2	-10	-3	-6	-10	-12	7	7	4	
18000	2	C	6	2	2	-3	-4	-3	-1	-6	-2	-4	-9	-11	10	5	6	

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**A--CENTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN LANCES HEADINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E C L I V A L E N T H E A D I N D S										STANDARD DEVIATION			
	DIRECT					RETURN					JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	***ASC	ATS	ABS	JAN	APR	JUL	OCT	***ASO	ATS	ABS
GUANTANAMO EAY														
5000	2	3	3	2	2	2	-4	-3	-3	-3	-2	-3	-5	-10
10000	-2	3	2	2	1	1	-7	0	-5	-3	-3	-3	-10	-11
18000	-6	-5	2	3	-1	-10	-12	-5	-3	-2	-7	-5	-13	-15
GUANTANAMO EAY														
5000	5	-3	0	0	0	0	-5	-5	3	0	0	0	-4	-5
10000	1	-1	-3	-1	-1	-6	-7	-2	1	2	1	0	-4	-5
18000	3	1	-1	0	0	-5	-6	-4	-2	0	0	-1	-7	-8
GUANTANAMO EAY														
5000	1	2	2	1	1	-3	-5	-2	-3	-2	-2	-3	-8	-9
10000	-4	1	2	2	0	-6	-7	0	-4	-2	-3	-3	-9	-10
18000	-5	-7	1	1	-3	-12	-14	-2	0	-2	-6	-3	-11	-13
GUANTANAMO EAY														
5000	3	1	5	3	3	-1	-3	-4	-2	-5	-3	-4	-9	-10
10000	-4	-3	5	0	0	-7	-8	3	2	-4	0	0	-6	-7
18000	-16	-18	3	-4	-6	-20	-22	14	15	-2	3	6	-2	-4
GUANTANAMO EAY														
5000	-5	-9	-13	-10	-11	-14	-15	8	5	14	10	10	6	6
10000	-6	-6	-13	-7	-8	-13	-14	6	6	13	7	7	3	2
18000	1	1	-5	-4	-3	-5	-10	-1	-1	9	4	2	-3	-4
GUANTANAMO EAY														
5000	5	4	6	4	4	4	-1	-5	-4	-6	-4	-5	-11	-12
10000	-3	0	5	4	1	-5	-7	2	0	-5	-3	-2	-8	-10
18000	-12	-12	4	0	-3	-14	-17	10	10	-3	-1	2	-5	-7
GUANTANAMO EAY														
5000	-2	-7	-12	-8	-5	-15	-16	8	7	13	9	9	4	2
10000	-5	-3	-12	-5	-7	-13	-15	5	3	12	6	6	0	-1
18000	3	7	-6	-3	-1	-6	-10	-4	-8	7	3	0	-8	-11
GUANTANAMO EAY														
5000	-10	-7	-13	-9	-10	-15	-17	10	8	13	10	10	3	4
10000	-6	-3	-12	-5	-7	-13	-15	6	3	12	6	7	0	0
18000	2	7	-6	-3	-1	-6	-10	-3	-8	0	3	0	-8	-10
GUANTANAMO EAY														
5000	-10	-7	-13	-9	-10	-15	-17	-10	1	-5	-5	-5	-9	-10
10000	-6	-3	-12	-5	-7	-13	-15	-5	-2	-8	-2	-5	-10	-11
18000	2	7	-6	-3	-1	-6	-10	-3	-2	-4	-1	-3	-3	-10

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**A--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADWINDS AND STANARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*												STANARC DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	MAR	APR	JAN	APR	JUL	OCT	MAR	APR	JAN	APR	JUL	OCT
GUATAPALA CITY																
5000	1	2	1	0	C	C	-3	-5								
10000	4	4	0	2	2	2	-2	-3								
18000	7	6	0	4	3	3	-2	-3								
GUATAPALA CITY																
5000	C	1	1	0	C	C	-4	-5								
10000	4	4	0	2	2	2	-2	-3								
18000	7	6	C	4	3	3	-2	-3								
GUATAPALA CITY																
5000	-4	-2	-2	-3	-3	-3	-6	-9								
10000	1	2	-3	C	C	C	-5	-6								
18000	4	5	-2	2	1	1	-4	-5								
GUATAPALA CITY																
5000	-1	1	0	-1	-1	-1	-4	-5								
10000	2	4	-1	2	1	1	-2	-4								
18000	6	11	0	6	5	5	C	-1								
GUATAPALA CITY																
5000	-10	-6	-9	-8	-5	-5	-13	-14								
10000	-5	-4	-12	-5	-7	-7	-12	-13								
18000	-2	1	-8	-3	-4	-4	-10	-11								
GUATAPALA CITY																
5000	-1	-3	-3	-1	-3	-3	-5	-6								
10000	C	-3	-6	-3	-3	-3	-6	-7								
18000	-4	-2	-5	-5	-5	-5	-5	-10								
GUATAPALA CITY																
5000	-1	-8	-9	-11	-6	-6	-10	-12								
10000	-2	-5	-11	-6	-6	-6	-12	-14								
18000	-3	-1	-11	-6	-6	-6	-13	-14								
GUATAPALA CITY																
5000	1	3	2	0	2	2	-2	-3								
10000	4	6	2	3	3	3	C	-1								
18000	11	6	2	7	6	6	C	-1								
GUATAPALA CITY																
5000	-3	-6	-3	-3	-4	-4	-6	-9								
10000	-6	-6	-13	-6	-6	-6	-12	-13								
18000	-5	-3	-11	-6	-7	-7	-12	-14								

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--INDICATES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EGLIVALLENT HEADWINDS												STANARC DEVIATION					
	DIRECT						RETURN											
	JAN	APR	JUL	OCT	MAR	ASO	A75	ASO	A75	ASO	A75	ASO		JAN	APR	JUL	OCT	
GUATAPALA CITY																		
5000	TC	3	2	0	2	-2	-3	-4	-4	-2	-1	-3	-8	7	5	7	1698 N.MI.	
10000		5	2	3	3	0	-2	-9	-7	-2	-3	-5	-11	8	8	5	7	
18000		10	6	1	7	5	-1	-20	-12	-1	-10	-10	-19	12	11	6	10	
GUATAPALA CITY																		
5000	TC	4	4	1	3	-1	-3	-4	-4	-4	-1	-4	-9	9	0	5	7	927 N.MI.
10000		3	3	1	2	2	-2	-4	-3	-3	-1	-3	-8	0	0	6	7	
18000		5	0	2	1	1	-4	-8	-3	0	-3	-3	-10	12	11	6	10	
GUATAPALA CITY																		
5000	TC	0	0	-1	-1	-5	-6	1	-1	0	1	0	-4	8	7	5	7	990 N.MI.
10000		3	-1	1	0	-4	-5	-3	-3	0	-1	-2	-7	0	0	5	7	
18000		6	0	4	3	-2	-4	-8	-8	0	-4	-5	-12	11	10	6	9	
GUATAPALA CITY																		
5000	TC	-6	-10	-8	-5	-13	-14	11	6	10	9	9	5	6	6	4	6	1072 N.MI.
10000		-3	-12	-5	-7	-12	-13	6	4	12	5	6	2	7	6	5	6	
18000		1	-7	-3	-3	-5	-10	1	-1	8	3	3	-3	9	9	5	7	
GUATAPALA CITY																		
5000	TC	-6	-11	-5	-10	-13	-14	11	7	11	9	9	6	6	5	4	5	1365 N.MI.
10000		-4	-12	-5	-7	-12	-13	6	4	12	5	6	2	6	6	5	5	
18000		1	-7	-4	-4	-5	-10	1	-1	8	4	3	-2	9	8	5	7	
GUATAPALA CITY																		
5000	TC	-8	-3	2	-4	-5	-10	5	8	4	-1	3	0	7	6	4	6	468 N.MI.
10000		-5	-11	-5	-7	-11	-13	5	5	11	6	6	2	7	6	6	6	
18000		-2	-11	-5	-6	-13	-14	4	2	11	6	6	0	11	9	7	8	
GUATAPALA CITY																		
5000	TC	-6	-10	-9	-10	-13	-14	11	6	11	9	9	5	6	6	4	5	1209 N.MI.
10000		-4	-12	-5	-7	-12	-13	6	4	12	5	6	2	7	6	5	6	
18000		1	-7	-3	-3	-6	-10	1	-1	8	4	3	-2	9	8	5	7	
GUATAPALA CITY																		
5000	TC	2	1	0	1	-3	-4	-3	-3	-1	0	-2	-7	0	0	5	7	1206 N.MI.
10000		5	4	1	2	-1	-3	-6	-5	-1	-2	-4	-5	0	0	8	7	
18000		6	0	5	3	-2	-4	-14	-10	0	-6	-7	-15	11	11	6	10	
GUATAPALA CITY																		
5000	TC	-3	-4	-1	-3	-6	-6	0	3	4	1	2	-1	5	4	4	4	1273 N.MI.
10000		0	-2	-6	-3	-7	-8	0	2	5	3	2	-1	5	4	5	5	
18000		-4	-3	-6	-5	-10	-11	4	4	0	4	4	0	8	7	6	6	

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.
**A--CENCIES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E C L I V A L E N T H E A D W I N D S										STANARC DEVIATION			
	DIRECT					RETURN								
	JAN	APR	JUL	OCT	APR	JUL	OCT	APR	JUL	OCT	JAN	APR	JUL	OCT
GUATAPALA CITY	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-10	-5	-8	-3	-6	-13	-14	10	10	9	3	8	3	1
10000	-7	-5	-13	-6	-6	-13	-15	7	6	13	7	8	3	2
18000	-3	0	-10	-5	-5	-12	-14	2	0	11	6	5	-2	-4
GUATAPALA CITY	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	3	3	2	1	2	-2	-3	-5	-4	-2	-1	-3	-8	-9
10000	7	7	2	3	4	0	-1	-11	-5	-3	-4	-7	-12	-14
18000	12	8	3	8	7	0	0	-22	-14	-4	-12	-12	-21	-24
GUATAPALA CITY	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-10	-8	-9	-7	-5	-12	-13	10	8	10	8	9	5	5
10000	-6	-6	-15	-6	-5	-14	-15	8	7	15	7	9	4	3
18000	-3	-1	-10	-6	-4	-11	-12	3	1	11	6	5	0	-1
HAMA BE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	5	9	6	6	0	-2	-7	-6	-9	-7	-8	-15	-16
10000	11	8	10	8	5	1	0	-12	-10	-11	-9	-11	-19	-21
18000	14	10	16	14	13	2	0	-18	-13	-16	-17	-17	-20	-30
HAMA BE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	5	9	6	6	0	-2	-8	-6	-9	-6	-8	-15	-16
10000	10	8	11	7	5	1	0	-12	-10	-11	-8	-11	-19	-20
18000	15	10	15	13	13	2	0	-19	-14	-18	-16	-17	-28	-30
HAMA BE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-10	-4	-3	-4	-5	-14	-16	7	3	2	2	3	-4	-6
10000	-14	-8	-8	-8	-5	-17	-20	9	5	5	5	5	-2	-4
18000	-22	-10	-10	-15	-16	-26	-31	14	10	6	8	9	-2	-5
HAMA BE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-3	-7	-10	-7	-15	-17	7	2	6	6	5	-1	-3
10000	-12	-7	-10	-13	-11	-18	-20	11	6	10	12	9	2	1
18000	-18	-12	-17	-20	-17	-27	-29	12	6	15	16	13	3	0
HAMA BE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-1	-1	-2	-1	-2	-7	-9	0	1	2	0	0	-4	-6
10000	-5	-6	-8	-7	-7	-13	-14	1	5	7	6	5	-1	-2
18000	-5	-10	-13	-11	-11	-15	-20	0	6	11	8	6	-1	-4
HAMA BE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-2	-1	-3	-3	-3	-10	-12	0	0	2	2	1	-6	-8
10000	-6	-6	-9	-9	-6	-16	-18	3	4	8	8	6	-1	-3
18000	-6	-5	-16	-14	-13	-23	-26	2	5	13	10	8	-3	-6

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

*--LEASTS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN LENGTHS HEADWINDS.

EQUIVALENT HEADWINDS ARE STANCAE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANCAE DEVIATION			
	DIRECT						RETURN						JAN APR JUL OCT			
	JAN	APR	JUL	OCT	APR	JUL	JAN	APR	JUL	OCT	APR	JUL	JAN	APR	JUL	OCT
PAPA AB	TC	TC	LLQA, PALLA													
5000	7	4	7	4	5	5	-1	-3								
10000	7	5	8	3	5	5	-2	-4								
15000	11	4	5	5	5	5	-4	-6								
MAHA AB	TC	TC	LLXCR													
5000	7	6	8	5	5	5	1	6								
10000	8	5	9	5	5	5	2	0								
15000	13	12	12	5	11	3	1									
PAPA AB	TC	TC	PILCENTHALL													
5000	-11	-5	-8	-9	-5	-16	-20	-24								
10000	-14	-8	-10	-12	-11	-22	-24	-30								
15000	-24	-14	-16	-20	-15	-34	-38									
MAHA AB	TC	TC	MCSCC													
5000	6	4	6	8	5	-1	-3									
10000	6	5	7	10	7	0	-2									
15000	5	8	14	14	11	0	-3									
PAPA AB	TC	TC	MAPLES													
5000	6	5	8	4	5	-2	-3									
10000	6	6	7	4	6	-2	-5									
15000	12	5	7	6	7	-4	-7									
PAPA AB	TC	TC	MAPSARSSAR													
5000	-10	-4	-3	-6	-6	-13	-15									
10000	-15	-5	-8	-10	-11	-15	-21									
15000	-24	-10	-13	-16	-16	-25	-32									
PAPA AB	TC	TC	NICCSIA													
5000	6	5	9	6	6	0	0									
10000	10	5	11	7	5	2	0									
15000	15	12	16	13	14	4	2									
PAPA AB	TC	TC	CFAN													
5000	2	0	1	0	0	-6	-8									
10000	-1	-3	-4	-4	-4	-11	-13									
15000	0	-6	-10	-7	-7	-17	-19									
MAHA AB	TC	TC	PCAT LYALTY													
5000	1	-1	0	-1	-1	-7	-9									
10000	-3	-5	-7	-6	-6	-13	-15									
15000	-4	-8	-13	-10	-10	-15	-22									

HEADWINDS—COMPUTED FOR A 120-KT AIRSPEED.

**A—GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN LENGTH HEADWINDS.

EQUIVALENT HEADINGS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	ECLING VENTIL HEAD B I N D S O												STANCARE DEVIATION			
	DIRECT						RETURN						JAN APR JUL OCT			
	JAN	APR	JUL	OCT	APR	JUL	JAN	APR	JUL	OCT	APR	JUL	JAN	APR	JUL	OCT
HAMA AB																
5000	TC	-5	-7	-8	PRESTWICK		10	4	7	7	6	-2	16	13	544 N.M.I.	
10000		-8	-9	-12	-6	-18	12	6	8	9	8	-1	17	16	11	14
18000		-14	-14	-15	-11	-21	19	5	10	13	12	-1	24	22	12	14
					-18	-33									17	22
HAMA AB																
5000	TC	4	7	4	HOME		-8	-5	-7	-5	-7	-15	14	12	530 N.M.I.	
10000		5	6	4	5	-2	-10	-7	-7	-6	-8	-17	16	14	10	11
18000		12	4	5	6	-6	-17	-8	-9	-10	-11	-24	21	19	12	14
						-9									15	19
HAMA AB																
5000	TC	-2	0	-1	SCARFESTAC		2	1	0	0	0	-5	11	9	1906 N.M.I.	
10000		-7	-4	-5	-2	-10	4	5	2	2	3	-3	12	11	7	9
18000		-15	-8	-13	-14	-24	10	10	5	7	7	-1	16	15	8	10
						-27									12	15
HAMA AB																
5000	TC	2	4	5	STUCKMELP		-4	-3	-5	-6	-5	-13	14	12	675 N.M.I.	
10000		2	5	5	3	-7	-5	-4	-6	-7	-6	-15	16	14	10	13
18000		6	10	7	5	-12	-8	-8	-13	-14	-12	-25	23	21	11	14
															16	21
HAMA AB																
5000	TC	6	9	5	TEL AVIV		-7	-6	-9	-6	-8	-13	10	8	1635 N.M.I.	
10000		10	11	7	5	0	-12	-10	-11	-8	-11	-17	10	10	7	7
18000		15	16	12	14	3	-20	-17	-18	-15	-18	-27	15	13	8	10
															10	13
HAMA AB																
5000	TC	0	-1	-2	TCRFEJCA		-1	0	1	1	0	-8	13	12	736 N.M.I.	
10000		-5	-8	-7	-1	-11	1	3	7	6	4	-4	14	14	10	12
18000		-8	-14	-13	-11	-23	0	4	11	8	6	-6	20	18	10	12
															14	17
HAMA AB																
5000	TC	1	3	4	TCRPSU		-3	-2	-3	-5	-4	-10	11	10	1229 N.M.I.	
10000		1	3	3	2	-6	-3	-3	-4	-5	-4	-12	13	12	11	11
18000		-2	-3	4	0	-14	-0	-3	-9	-10	-8	-19	19	18	10	12
															14	17
HAMA AB																
5000	TC	4	6	2	ILNIS		-7	-4	-6	-3	-5	-13	13	11	798 N.M.I.	
10000		5	5	1	3	-4	-6	-5	-6	-3	-6	-14	14	13	9	10
18000		6	1	1	2	-11	-14	-5	-4	-6	-7	-19	19	17	10	13
															13	16
HAMA AB																
5000	TC	0	0	-1	LAHAGCZA		-2	0	0	0	0	-9	14	12	582 N.M.I.	
10000		-4	-7	-6	-4	-14	0	2	6	4	3	-5	15	14	10	12
18000		-8	-12	-11	-5	-21	-2	2	9	6	4	-8	21	15	11	12
															14	18

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**--DENCIES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

PLUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADWINDS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADWINDS										STANCARE DEVIATION			
	JAN	APR	JUL	OCT	APR	JUL	OCT	APR	JUL	OCT	JAN	APR	JUL	OCT
PARPCA AFE	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO
5000	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5
10000	-14	-14	-7	-10	-12	-12	-15	-20	-20	-20	-20	-20	-20	-20
18000	-30	-21	-11	-21	-20	-20	-30	-33	-33	-33	-33	-33	-33	-33
PARPCA AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-7	-8	-6	-7	-7	-13	-15	-15	-15	-15	-15	-15	-15
10000	-17	-15	-8	-10	-12	-12	-20	-21	-21	-21	-21	-21	-21	-21
18000	-32	-22	-12	-22	-21	-21	-32	-35	-35	-35	-35	-35	-35	-35
PARPCA AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-11	-8	-7	-7	-7	-7	-15	-17	-17	-17	-17	-17	-17	-17
10000	-24	-17	-10	-14	-14	-14	-24	-26	-26	-26	-26	-26	-26	-26
18000	-40	-26	-16	-27	-26	-26	-42	-42	-42	-42	-42	-42	-42	-42
PARPCA AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-11	-8	-7	-7	-7	-7	-15	-16	-16	-16	-16	-16	-16	-16
10000	-21	-17	-10	-12	-12	-12	-22	-25	-25	-25	-25	-25	-25	-25
18000	-35	-25	-15	-26	-26	-26	-41	-41	-41	-41	-41	-41	-41	-41
PARPCA AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	2	3	5	4	4	-2	-4	-4	-4	-4	-4	-4	-4
10000	15	7	6	9	8	8	-1	-1	-1	-1	-1	-1	-1	-1
18000	22	13	10	16	14	14	3	3	3	3	3	3	3	3
PARPCA AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-7	-8	-6	-7	-7	-13	-14	-14	-14	-14	-14	-14	-14
10000	-17	-15	-8	-10	-12	-12	-20	-21	-21	-21	-21	-21	-21	-21
18000	-32	-22	-12	-22	-21	-21	-32	-35	-35	-35	-35	-35	-35	-35
PARPCA AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-6	-6	-4	-4	-4	-13	-15	-15	-15	-15	-15	-15	-15
10000	-11	-12	-6	-8	-8	-8	-14	-20	-20	-20	-20	-20	-20	-20
18000	-22	-17	-9	-17	-16	-16	-28	-31	-31	-31	-31	-31	-31	-31
PARPCA AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	10	6	9	10	8	8	1	0	0	0	0	0	0	0
10000	16	5	13	17	12	12	5	3	3	3	3	3	3	3
18000	25	14	15	23	15	15	6	6	6	6	6	6	6	6
PARPCA AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	10	6	9	10	8	8	1	0	0	0	0	0	0	0
10000	16	5	13	17	12	12	5	3	3	3	3	3	3	3
18000	25	14	15	23	15	15	6	6	6	6	6	6	6	6
PARPCA AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	10	6	9	10	8	8	1	0	0	0	0	0	0	0
10000	16	5	13	17	12	12	5	3	3	3	3	3	3	3
18000	25	14	15	23	15	15	6	6	6	6	6	6	6	6
PARPCA AFE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	10	6	9	10	8	8	1	0	0	0	0	0	0	0
10000	16	5	13	17	12	12	5	3	3	3	3	3	3	3
18000	25	14	15	23	15	15	6	6	6	6	6	6	6	6

ONEALPHAS--CLOUTEC FOR A 120-KT AIRSPEED.
 ***--CENCIES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN CENCIES HEADWINDS.

EQUIVALENT NEEDINGS FOR STORMS DEVIATION IN RADTS FOR GREAT CIRCLE AIR ROUTES

REPORT IN FEET	STATION												STANDARD DEVIATION																							
	JAN				FEB				MAR				APR				MAY				JUN				JUL				AUG							
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
10000	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
PANCA APT	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26	10	14	20	26
5000	10	14	20	26	10	1																														

[illegible]

EQUIVALENT HEADWINDS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	WIND DIRECTION										STANCARE DEVIATION			
	JAN	APR	JUL	OCT	0000	075	AB5	JAN	APR	JUL	OCT	0000	075	AB5
PANAMA AFE	IC	IC	SPAN AFE											
5000	-12	-8	-8	-5	-16	-16		9	7	7	7	7	6	0
10000	-22	-17	-11	-16	-25	-27		19	14	10	12	13	5	3
18000	-41	-26	-18	-25	-42	-44		32	15	14	23	21	10	7
PANAMA AFE	TC	TC	SCHEMSTADT											
5000	3	1	2	3	-4	-6		-4	-2	-3	-4	-4	-11	-12
10000	5	2	3	2	-7	-7		-4	-4	-4	-5	-6	-15	-17
18000	5	3	3	3	-6	-6		-16	-10	-7	-12	-12	-23	-26
PANAMA AFE	TC	TC	TAULE											
5000	0	1	0	1	-5	-6		0	-1	-1	-2	-2	-7	-8
10000	0	1	0	0	-6	-7		-4	-2	-3	-2	-3	-10	-12
18000	4	1	0	0	-7	-9		-10	-5	-3	-6	-6	-16	-18
PANAMA AFE	TC	TC	WESTCOT AFE											
5000	-12	-10	-10	-11	-15	-21		10	7	10	9	9	0	-1
10000	-25	-15	-14	-19	-25	-31		21	12	13	16	15	5	3
18000	-41	-26	-23	-23	-45	-48		34	20	20	27	24	11	8
PANAMA AFE	TC	TC	MCNESTAC AFE											
5000	0	1	0	1	-4	-6		0	-4	0	0	-1	-7	-9
10000	4	5	0	3	-3	-4		-5	-5	0	-5	-4	-11	-12
18000	5	6	0	3	-3	-5		-8	-5	0	-6	-6	-14	-17
HAVANA	TC	TC	HUNTER AFE											
5000	4	4	2	2	-2	-4		-5	-5	-3	-2	-4	-10	-12
10000	3	3	3	2	-3	-5		-5	-4	-2	-3	-4	-10	-12
18000	-1	-1	2	3	-8	-10		-7	-4	-2	-5	-5	-13	-16
PANAMA	TC	TC	JACKSONVILLE											
5000	4	4	3	4	-2	-3		-5	-5	-4	-3	-5	-11	-12
10000	3	3	3	2	-3	-5		-4	-3	-3	-3	-4	-10	-12
18000	-2	-2	2	3	-6	-10		-4	-3	-2	-4	-4	-12	-14
PANAMA	TC	TC	KINCLEY AFE											
5000	3	7	2	1	-2	-3		-3	-7	-2	-1	-4	-9	-11
10000	6	12	2	5	0	-1		-9	-12	-2	-5	-7	-14	-16
18000	15	18	3	11	2	0		-19	-21	-3	-11	-13	-23	-26
PANAMA	TC	TC	KINGSTON											
5000	-2	-5	-8	-5	-7	-13		5	6	9	5	6	1	0
10000	-4	-3	-9	-5	-6	-13		4	3	10	5	5	0	-1
18000	6	8	-5	-3	0	-9		-7	-5	5	3	-1	-10	-12

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEC.

***--CENCIES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN CENCIES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS														STANCARC DEVIATION			
	DIRECT							RETURN										
	JAN	APR	JUL	OCT	WASC	ATE	AE5	JAN	APR	JUL	OCT	WASC	ATE	AE5	JAN	APR	JUL	OCT
HAVANA																		
5000	TC	4	4	3	4	4	-2	-6	-6	-4	-4	-5	-11	-12	9	9	1597 N.M.I.	
10000	4	7	4	6	5	5	-1	-13	-11	-3	-7	-9	-16	-18	11	10	6	
15000	14	7	6	11	8	8	-1	-26	-16	-3	-17	-16	-26	-29	14	14	7	
HAVANA																		
5000	TC	-1	0	3	1	1	-4	-4	1	0	-3	-2	-6	-8	8	7	687 N.M.I.	
10000	-1	0	0	0	-1	-1	-6	0	1	-1	0	0	-5	-6	8	7	5	
15000	1	0	0	-2	0	-6	-3	-2	0	0	2	0	-6	-8	11	10	6	
HAVANA																		
5000	TC	4	3	2	3	3	-4	-6	-5	-3	-3	-5	-11	-12	10	9	1095 N.M.I.	
10000	4	3	3	4	4	4	-3	-10	-5	-3	-5	-7	-14	-16	11	11	7	
15000	6	4	4	6	5	5	-4	-21	-13	-4	-12	-12	-22	-25	15	15	8	
HAVANA																		
5000	TC	-0	-4	-2	-4	-4	-8	-1	7	4	3	3	0	-1	6	5	1082 N.M.I.	
10000	-1	-3	-8	-4	-5	-5	-10	1	4	7	4	4	0	-1	6	6	4	
15000	2	1	-5	-3	-2	-1	-8	-2	-2	5	3	1	-4	-6	9	8	5	
HAVANA																		
5000	TC	4	2	2	2	2	-4	-5	-4	-2	-2	-4	-10	-11	10	9	1069 N.M.I.	
10000	4	4	2	3	3	3	-4	-8	-7	-3	-4	-6	-13	-14	11	11	7	
15000	4	1	3	6	3	3	-7	-16	-10	-4	-11	-10	-20	-23	15	15	8	
HAVANA																		
5000	TC	1	4	2	2	2	-3	-4	-1	-4	-2	-3	-9	-11	10	10	588 N.M.I.	
10000	-2	-4	4	-1	-1	-5	-10	3	3	-3	0	0	-6	-7	11	11	7	
15000	-18	-16	1	-0	-5	-21	-24	13	15	-1	5	6	-2	-4	14	14	8	
HAVANA																		
5000	TC	-0	-12	-4	-10	-13	-14	-4	8	13	9	9	6	5	5	5	1893 N.M.I.	
10000	-5	-5	-12	-7	-8	-12	-15	3	5	1	7	7	3	2	5	5	4	
15000	2	2	-8	-4	-3	-6	-9	-3	-3	-3	4	1	-4	-6	7	7	5	
HAVANA																		
5000	TC	3	3	3	3	3	-3	-3	-3	-3	-3	-4	-10	-12	10	10	328 N.M.I.	
10000	4	3	3	3	3	3	-3	-4	-4	-4	-5	-4	-11	-12	11	11	7	
15000	1	1	2	4	2	3	-3	-6	-3	-3	-5	-5	-13	-15	15	14	8	
HAVANA																		
5000	TC	-2	-10	-7	-6	-13	-17	-7	6	10	7	7	2	2	8	7	622 N.M.I.	
10000	-3	-1	-10	-3	-3	-11	-13	3	1	10	7	4	-1	-2	9	8	5	
15000	6	10	-5	-2	0	-6	-9	-7	-10	5	1	-1	-13	-13	12	11	7	

HEADWINDS--COMPUTED FOR A 10-KNOT AIRSPEED.

STANCARE DEVIATION--EQUIVALENT HEADWINDS FOR COLLECTED PER CENT RELIABILITIES.

WINDS--DATA LOCATED PERMANENTLY.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS														STANDARD DEVIATION			
	DIRECT							RETURN										
	JAN	APR	JUL	OCT	**A5C	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85		JAN	APR	JUL
FAVANA																		
5000	TC	-6	-10	-7	-6	-13	-14	TC	6	11	8	8	3	2	7	6	5	7
10000		-3	-10	-4	-5	-11	-12		3	1	10	5	5	-2	8	8	6	7
18000		6	10	-5	-2	-6	-7		-7	-11	6	2	-1	-13	11	11	6	8
FAVANA																		
5000	TC	-4	0	2	0	-4	-5	TC	-4	0	-2	0	0	-6	7	7	4	6
10000		-1	-1	-1	-1	-5	-7		0	1	0	1	0	-5	7	7	6	6
18000		1	1	-2	-1	-6	-7		-2	-1	1	2	0	-7	10	9	6	8
FAVANA																		
5000	TC	2	3	4	3	-1	-2	TC	-5	-2	-3	-4	-9	-10	8	7	5	7
10000		-1	3	0	0	-4	-5		0	1	-3	0	-1	-7	8	7	6	6
18000		-2	-4	2	-1	-7	-9		1	2	-2	1	0	-7	11	10	6	8
FAVANA																		
5000	TC	-6	-10	-7	-6	-13	-14	TC	6	11	7	7	3	2	8	7	5	7
10000		-3	-10	-4	-5	-11	-12		3	1	10	5	5	-2	9	8	6	7
18000		6	10	-5	-2	-6	-8		-7	-10	6	2	-1	-13	11	11	7	9
FAVANA																		
5000	TC	4	3	2	3	-2	-4	TC	-5	-4	-3	-2	-4	-10	10	10	7	9
10000		3	2	3	2	-3	-5		-5	-4	-2	-3	-4	-10	11	11	7	9
18000		0	0	2	3	-7	-9		-9	-6	-2	-6	-6	-15	15	15	8	13
FAVANA																		
5000	TC	-4	-3	0	-2	-5	-6	TC	-1	4	3	0	1	-2	5	4	4	3
10000		-1	-3	-1	-1	-5	-6		-2	1	1	0	0	-3	5	4	5	5
18000		0	-2	-1	-1	-5	-6		-1	0	2	1	0	-4	7	7	5	6
FAVANA																		
5000	TC	0	1	3	1	-2	-3	TC	-4	0	-2	-3	-3	-7	8	8	5	7
10000		-1	1	0	0	-5	-6		0	1	-2	0	0	-6	8	8	6	7
18000		-2	-3	1	-2	-6	-5		1	2	-1	2	0	-6	11	10	6	8
FAVANA																		
5000	TC	4	3	3	3	-2	-3	TC	-6	-5	-3	-3	-5	-11	10	9	7	9
10000		6	7	4	5	-1	-2		-11	-10	-4	-6	-8	-15	11	11	7	10
18000		5	5	4	4	-1	-3		-23	-15	-8	-14	-14	-24	15	15	8	13
FAVANA																		
5000	TC	-6	-10	-7	-6	-12	-13	TC	6	7	11	7	8	3	6	6	4	6
10000		-5	-4	-12	-5	-12	-13		5	4	12	6	6	1	7	7	6	6
18000		4	5	-7	-3	-7	-9		-4	-6	7	3	0	-7	10	5	6	7

HEADWINDS--COMPUTED FOR A 140-KT AIRSPEED.

***A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

PLUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STARCARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STARCARC DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT
PCMESTEAL AFB	TC															
5000	-2	1	0	0	-6	-8	-1	1	-1	0	0	-6	-8	10	10	501 N.M.I.
10000	-10	-5	1	-3	-13	-15	9	6	-1	2	3	-3	-5	11	11	7 10
18000	-20	-24	0	-11	-14	-31	22	21	0	9	11	0	-1	15	15	8 13
PCMESTEAL AFB	TC															
5000	-2	-7	-12	-5	-10	-14	7	7	12	9	8	5	4	5	5	1001 N.M.I.
10000	-4	-4	-11	-6	-11	-12	3	4	11	6	6	1	0	6	5	5
18000	4	4	-7	-3	-1	-8	-5	-5	7	3	0	-6	-8	8	7	5 6
PCMESTEAL AFB	TC															
5000	5	4	4	4	4	-3	-5	-5	-4	-4	-5	-11	-13	11	10	167 N.M.I.
10000	0	0	0	0	0	-7	-1	0	-3	-3	-2	-10	-11	12	12	7 10
18000	-6	-6	4	1	-1	-14	0	1	-3	-2	-1	-10	-12	16	15	8 11
PCMESTEAL AFB	TC															
5000	-5	-5	-8	-7	-12	-13	6	5	9	6	6	1	0	8	7	609 N.M.I.
10000	0	-1	-8	-4	-10	-11	0	1	8	4	3	-2	-4	9	5	6 8
18000	5	11	-4	-1	1	-7	-10	-12	5	1	-3	-13	-15	12	12	7 9
PCMESTEAL AFB	TC															
5000	-5	-5	-8	-7	-12	-13	7	5	10	7	7	2	1	8	7	847 N.M.I.
10000	0	-1	-8	-4	-10	-11	0	0	8	4	3	-2	-4	9	8	7 8
18000	5	12	-4	-1	2	-7	-10	-13	5	1	-3	-13	-16	12	11	7 9
PCMESTEAL AFB	TC															
5000	-3	0	0	0	-4	-5	-4	3	0	-2	-1	-5	-6	7	6	956 N.M.I.
10000	0	-1	0	-1	-5	-6	0	1	0	1	0	-4	-5	7	7	4 6
18000	1	0	0	-2	-6	-7	-2	-1	0	2	0	-6	-7	10	5	6 8
PCMESTEAL AFB	TC															
5000	4	0	2	3	2	-3	-4	-1	-2	-3	-3	-8	-9	8	7	861 N.M.I.
10000	0	-1	2	0	0	-6	0	1	-2	0	0	-5	-6	8	7	5 7
18000	-2	-5	1	-2	-8	-10	2	4	-1	2	1	-4	-6	11	10	6 8
PCMESTEAL AFB	TC															
5000	-5	-9	-9	-6	-7	-13	6	5	9	7	7	2	1	8	7	719 N.M.I.
10000	0	-1	-8	-4	-10	-11	0	0	8	4	3	-3	-4	9	5	5 7
18000	5	11	-4	-1	2	-7	-10	-12	5	1	-3	-13	-15	12	11	7 9
PCMESTEAL AFB	TC															
5000	4	2	3	1	2	-5	-5	-3	-2	-1	-3	-10	-11	11	10	511 N.M.I.
10000	0	0	2	2	1	-6	-3	-2	-1	-2	-2	-10	-11	12	12	7 10
18000	-5	-5	2	1	-1	-14	-6	-3	-2	-4	-4	-13	-16	17	16	8 11

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.
 **--CRATES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION		
	DIRECT						RETURN								
	JAN	APR	JUL	OCT	APRIL	SEP	JAN	APR	JUL	OCT	APRIL	SEP			
POWHESTEAD AFB														1803 N.M.I.	
5000	1	TC	-3	0	-2	-5	-2	4	3	0	1	-2	-3	5	4
10000	1	-1	-2	-1	-1	-5	-1	-2	1	0	0	-3	-4	5	3
15000	1	0	-1	-1	0	-6	0	-1	1	1	0	-5	-6	7	5
POWHESTEAD AFB														787 N.M.I.	
5000	3	TC	1	2	1	-3	-4	0	-1	-2	-2	-7	-8	8	7
10000	-1	-2	1	-1	-1	-7	-7	1	-1	1	0	-4	-5	8	6
15000	-1	-3	1	-2	-1	-9	-9	0	-1	2	0	-5	-7	11	10
POWHESTEAD AFB														1077 N.M.I.	
5000	3	TC	4	3	3	-2	-3	-6	-5	-3	-5	-11	-12	10	10
10000	5	7	4	4	4	-2	-3	-11	-11	-4	-8	-16	-18	12	12
15000	5	5	4	5	6	-2	-4	-24	-15	-0	-14	-26	-29	16	16
POWHESTEAD AFB														1027 N.M.I.	
5000	-5	TC	-5	-9	-6	-11	-12	4	5	9	6	1	0	7	6
10000	-2	-3	-10	-5	-6	-11	-12	2	3	10	5	0	-1	8	7
15000	6	6	-5	-2	0	-6	-6	-7	-7	6	2	-9	-11	10	10
PUNTER AFB														449 N.M.I.	
5000	-3	TC	-4	-3	-2	-10	-12	5	4	4	2	3	-2	10	10
10000	-4	-3	-2	-3	-3	-10	-12	2	2	3	2	2	-4	12	11
15000	-2	-4	-2	-4	-4	-13	-10	-2	-2	2	2	3	-9	16	16
PUNTER AFB														835 N.M.I.	
5000	5	TC	4	5	6	0	-1	-10	-10	-4	-3	-7	-14	11	10
10000	4	10	8	7	11	3	1	-21	-15	-0	-7	-13	-25	13	12
15000	3	25	8	17	20	5	0	-37	-32	-8	-19	-23	-37	17	16
PUNTER AFB														872 N.M.I.	
5000	-3	TC	-4	-2	-4	-5	-10	2	3	4	2	2	-3	8	8
10000	0	-1	-3	-3	-2	-6	-5	-2	0	3	3	1	-4	10	5
15000	3	4	-2	-2	0	-6	-6	-10	-5	2	0	-3	-12	13	12
PUNTER AFB														1083 N.M.I.	
5000	7	TC	5	4	4	-1	-3	-9	-6	-5	-5	-7	-13	11	11
10000	2	10	7	8	5	1	0	-19	-14	-8	-10	-13	-21	13	13
15000	22	11	5	16	13	3	0	-30	-21	-12	-23	-22	-36	18	18
PUNTER AFB														1224 N.M.I.	
5000	-1	TC	-3	-1	-2	-6	-7	0	2	1	0	0	-3	7	7
10000	-3	-3	-1	-2	-3	-7	-5	2	2	1	2	1	-2	8	8
15000	-5	-4	-1	-4	-4	-10	-12	1	1	1	3	1	-4	11	10

*HEADWINDS--COMPUTED FOR A 10-KT AIRSPEED.

**A--GREATS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

MIALS SIGN LEAVES HEADWINDS.

EQUIVALENT HEADWINDS AND STANARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANARC DEVIATION			
	DIRECT					RETURN								
	JAN	APR	JUL	OCT	APRIL	JAN	APR	JUL	OCT	APRIL	JAN	APR	JUL	OCT
PUNTER AAF 5000 10000 18000	7	3	3	3	4	-9	-6	-3	-4	-6	-13	-15	12	576 N.M.I.
	12	11	5	6	6	-18	-15	-6	-7	-11	-21	-23	14	8 11
	22	12	7	14	12	-36	-22	-9	-20	-20	-36	-40	20	14 9 13
PUNTER AAF 5000 10000 18000	TC	TC	TC	TC	TC	0	4	3	2	2	-1	-2	6	1579 N.M.I.
	4	-4	-3	-2	-3	0	1	4	3	2	-2	-3	7	4 5
	5	2	-3	-2	-1	-6	-5	3	1	-1	-7	-9	9	6 5 7
PUNTER AAF 5000 10000 18000	TC	TC	TC	TC	TC	-7	-4	-2	-3	-4	-12	-14	12	534 N.M.I.
	3	3	2	2	2	-14	-11	-4	-5	-8	-18	-20	14	8 11
	15	5	4	10	7	-36	-17	-6	-17	-16	-31	-35	20	14 9 13
PUNTER AAF 5000 10000 18000	TC	TC	TC	TC	TC	10	8	4	4	6	0	-2	11	475 N.M.I.
	-10	-8	-3	-4	-6	20	16	4	6	10	2	0	13	8 10
	-21	-17	-3	-6	-11	36	26	2	17	19	5	2	18	8 12
PUNTER AAF 5000 10000 18000	TC	TC	TC	TC	TC	4	1	2	0	1	-5	-7	12	228 N.M.I.
	-2	-1	0	-1	-1	-1	0	1	0	0	-8	-10	13	8 11
	-2	0	-1	-2	-2	-9	-8	1	-1	-4	-15	-18	18	8 12
PUNTER AAF 5000 10000 18000	TC	TC	TC	TC	TC	3	2	5	3	3	-1	-2	8	935 N.M.I.
	-4	-3	-5	-3	-4	-4	-1	4	2	0	-6	-7	10	6 8
	10	9	-2	0	2	-15	-13	3	-1	-5	-16	-18	13	7 10
PUNTER AAF 5000 10000 18000	TC	TC	TC	TC	TC	3	2	6	3	3	-1	-2	8	1109 N.M.I.
	-4	-3	-5	-3	-4	-5	-2	4	1	0	-6	-8	9	6 7
	13	13	-2	0	4	-17	-16	2	-2	-7	-18	-21	13	5 6 8
PUNTER AAF 5000 10000 18000	TC	TC	TC	TC	TC	0	4	2	0	1	-3	-4	7	1335 N.M.I.
	-2	-2	-2	-2	-2	1	2	1	2	1	-2	-3	8	5 6
	-2	-1	-1	-3	-2	-1	-1	1	2	0	-5	-7	10	5 6 8
PUNTER AAF 5000 10000 18000	TC	TC	TC	TC	TC	1	2	1	0	0	-3	-4	8	1184 N.M.I.
	-1	-3	-1	0	-2	3	2	1	2	2	-2	-3	8	5 7
	-10	-7	0	-5	-13	5	4	0	4	2	-3	-4	11	5 6 9

*HEADWINDS--COMPUTED FOR A 10-KT AIRSPEED.
 **A--EQUATES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANGARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANGARC DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	***ASC	A75	A85	JAN	APR	JUL	OCT	***ASO	A75	A85	
FLINTER AAF	TC														
5000	-4	-3	-5	-3	-4	-5	-11	3	2	5	3	3	-1	-3	1015 N.M.I.
10000	3	0	-4	-2	-1	-7	-8	-5	-1	4	2	0	-6	-8	8
18000	12	11	-2	0	3	-4	-5	-16	-15	2	-1	-6	-17	-20	10
FLINTER AAF	TC														13
5000	-1	-3	-1	0	-2	-6	-6	1	2	1	0	0	-3	-4	1130 N.M.I.
10000	-4	-4	-1	-2	-3	-8	-9	3	3	1	2	2	-2	-3	8
18000	-6	-6	-1	-5	-5	-12	-14	5	2	1	4	2	-3	-5	8
FLINTER AAF	TC														11
5000	7	5	4	4	4	-2	-4	-9	-7	-4	-4	-6	-14	-16	736 N.M.I.
10000	12	11	6	7	8	0	-1	-19	-15	-7	-8	-12	-21	-24	12
18000	22	12	8	15	12	2	0	-37	-22	-10	-21	-21	-36	-40	14
FLINTER AAF	TC														19
5000	-2	-3	-6	-4	-5	-5	-10	3	3	0	3	3	0	-1	1366 N.M.I.
10000	0	-1	-6	-3	-3	-8	-9	-1	0	6	3	2	-3	-4	7
18000	2	2	-3	-1	1	-5	-6	-12	-10	3	0	-3	-12	-15	8
ISTANBUL	TC														11
5000	-3	0	0	0	0	-7	-10	1	0	-8	0	-2	-11	-13	172 N.M.I.
10000	-7	-6	0	-4	-4	-14	-16	5	3	-2	3	1	-7	-9	15
18000	-8	-9	-4	-7	-7	-20	-23	2	3	0	3	1	-10	-13	15
ISTANBUL	TC														21
5000	5	6	6	5	5	1	0	-6	-6	-6	-3	-6	-10	-11	1533 N.M.I.
10000	1	2	5	2	2	-2	-4	-3	-4	-5	-1	-4	-9	-10	7
18000	-2	2	7	-2	1	-6	-8	-4	-6	-9	0	-6	-13	-15	8
ISTANBUL	TC														13
5000	-2	-4	-4	-4	-5	-10	-12	5	3	3	4	3	-1	-3	1741 N.M.I.
10000	-12	-11	-12	-10	-12	-16	-20	11	5	11	9	10	2	2	9
18000	-17	-17	-21	-17	-19	-27	-29	15	15	20	15	16	7	5	14
ISTANBUL	TC														10
5000	-2	-3	2	-3	-2	-10	-12	5	2	-2	3	1	-5	-7	740 N.M.I.
10000	-14	-11	-6	-6	-10	-16	-21	12	10	5	7	8	0	-1	13
18000	-15	-20	-16	-16	-18	-26	-31	14	17	15	13	14	4	1	13
ISTANBUL	TC														18
5000	2	4	4	4	5	0	-1	-3	-4	-9	-4	-6	-11	-12	997 N.M.I.
10000	2	3	6	0	2	-3	-5	-4	-5	-6	-1	-5	-11	-12	9
18000	1	5	9	0	4	-5	-7	-9	-12	-10	-4	-9	-13	-20	10

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--LENTIES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES												STANDARD DEVIATION		
	DIRECT						RETURN								
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	APR
ISTANBUL	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	JAN	FEB	APR
5000	-6	-9	-7	-8	-14	-16	-10	-11	-10	9	7	7	0	0	0
10000	-13	-9	-11	-10	-11	-21	-11	-15	-21	9	9	9	2	0	0
18000	-20	-13	-17	-17	-17	-30	-17	-27	-30	15	14	13	3	0	0
ISTANBUL	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	4	0	-2	2	6	-8	-3	-7	-8	-3	-3	-2	-9	-11	-11
10000	3	2	1	2	1	-8	-5	-6	-8	-5	-4	-4	-12	-14	-14
18000	-1	0	2	0	0	-14	-17	-11	-14	-4	-4	-5	-16	-19	-19
ISTANBUL	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-8	-4	-3	-5	-5	-13	-13	-13	-13	7	4	4	-2	-4	-4
10000	-14	-12	-10	-5	-12	-22	-22	-20	-22	13	11	10	2	0	0
18000	-15	-15	-21	-17	-20	-33	-33	-30	-33	15	14	20	5	2	2
ISTANBUL	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	3	5	11	4	4	-1	-3	-1	-3	-4	-5	-11	-4	-16	-16
10000	6	6	10	4	4	-1	-3	-1	-3	-9	-8	-11	-6	-19	-19
18000	11	12	14	8	11	0	-3	0	-3	-17	-16	-16	-12	-24	-31
ISTANBUL	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-4	-1	-4	-4	-10	-11	-10	-11	4	3	1	4	-2	-4
10000	-13	-14	-5	-5	-11	-20	-20	-18	-20	12	10	8	8	9	2
18000	-16	-20	-21	-16	-15	-26	-30	-26	-30	14	17	19	14	16	7
ISTANBUL	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-4	-2	-4	-4	-5	-11	-5	-11	4	3	1	4	2	-2
10000	-13	-11	-5	-5	-11	-17	-15	-17	-15	11	10	8	8	9	2
18000	-16	-20	-20	-16	-15	-27	-29	-27	-29	14	17	19	14	16	7
ISTANBUL	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-5	-9	-8	-8	-15	-16	-15	-16	7	5	8	7	6	0
10000	-13	-5	-10	-10	-11	-16	-20	-16	-20	10	8	10	9	9	2
18000	-21	-13	-16	-18	-17	-27	-30	-27	-30	16	5	13	13	12	2
ISTANBUL	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-1	-6	-5	-7	-8	-15	-16	-15	-16	6	5	9	6	6	0
10000	-14	-10	-11	-9	-11	-21	-21	-19	-21	10	8	10	8	9	1
18000	-16	-13	-18	-16	-17	-28	-30	-28	-30	14	5	15	13	12	1
ISTANBUL	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-4	-4	-5	-5	-6	-13	-13	-13	-13	7	4	4	5	4	-2
10000	-14	-12	-11	-9	-12	-20	-24	-20	-24	13	10	10	8	10	1
18000	-15	-18	-21	-17	-15	-30	-33	-30	-33	15	15	20	15	16	5

HEADWINDS—COMPUTED FOR A 120-KT AIRSPEED.
 **—CENTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	5	4	3	2	1	0	-1	-2	-3	-4	-5	7	6	5	4
10000	2	1	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	3	2	1	0
15000	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	7	6	5	4	3	2	1	0	-1	-2	-3	-4	8	7	6	5
10000	3	2	1	0	-1	-2	-3	-4	-5	-6	-7	-8	4	3	2	1
15000	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	8	7	6	5	4	3	2	1	0	-1	-2	-3	9	8	7	6
10000	4	3	2	1	0	-1	-2	-3	-4	-5	-6	-7	5	4	3	2
15000	2	1	0	0	0	0	0	0	0	0	0	0	3	2	1	0
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	9	8	7	6	5	4	3	2	1	0	-1	-2	10	9	8	7
10000	5	4	3	2	1	0	-1	-2	-3	-4	-5	-6	6	5	4	3
15000	3	2	1	0	0	0	0	0	0	0	0	0	4	3	2	1
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	10	9	8	7	6	5	4	3	2	1	0	-1	11	10	9	8
10000	6	5	4	3	2	1	0	-1	-2	-3	-4	-5	7	6	5	4
15000	4	3	2	1	0	0	0	0	0	0	0	0	5	4	3	2
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	11	10	9	8	7	6	5	4	3	2	1	0	12	11	10	9
10000	7	6	5	4	3	2	1	0	-1	-2	-3	-4	8	7	6	5
15000	5	4	3	2	1	0	0	0	0	0	0	0	6	5	4	3
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	12	11	10	9	8	7	6	5	4	3	2	1	13	12	11	10
10000	8	7	6	5	4	3	2	1	0	-1	-2	-3	9	8	7	6
15000	6	5	4	3	2	1	0	0	0	0	0	0	7	6	5	4
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	13	12	11	10	9	8	7	6	5	4	3	2	14	13	12	11
10000	9	8	7	6	5	4	3	2	1	0	-1	-2	10	9	8	7
15000	7	6	5	4	3	2	1	0	0	0	0	0	8	7	6	5
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	14	13	12	11	10	9	8	7	6	5	4	3	15	14	13	12
10000	10	9	8	7	6	5	4	3	2	1	0	-1	11	10	9	8
15000	8	7	6	5	4	3	2	1	0	0	0	0	9	8	7	6
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	15	14	13	12	11	10	9	8	7	6	5	4	16	15	14	13
10000	11	10	9	8	7	6	5	4	3	2	1	0	12	11	10	9
15000	9	8	7	6	5	4	3	2	1	0	0	0	10	9	8	7
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	16	15	14	13	12	11	10	9	8	7	6	5	17	16	15	14
10000	12	11	10	9	8	7	6	5	4	3	2	1	13	12	11	10
15000	10	9	8	7	6	5	4	3	2	1	0	0	11	10	9	8
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	17	16	15	14	13	12	11	10	9	8	7	6	18	17	16	15
10000	13	12	11	10	9	8	7	6	5	4	3	2	14	13	12	11
15000	11	10	9	8	7	6	5	4	3	2	1	0	12	11	10	9
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	18	17	16	15	14	13	12	11	10	9	8	7	19	18	17	16
10000	14	13	12	11	10	9	8	7	6	5	4	3	15	14	13	12
15000	12	11	10	9	8	7	6	5	4	3	2	1	13	12	11	10
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	19	18	17	16	15	14	13	12	11	10	9	8	20	19	18	17
10000	15	14	13	12	11	10	9	8	7	6	5	4	16	15	14	13
15000	13	12	11	10	9	8	7	6	5	4	3	2	14	13	12	11
12MIF	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	20	19	18	17	16	15	14	13	12	11	10	9	21	20	19	18
10000	16	15	14	13	12	11	10	9	8	7	6	5	17	16	15	14
15000	14	13	12	11	10	9	8	7	6	5	4	3	15	14	13	12

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.
***--HEADWINDS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES TAILWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS IN KNOTS FOR GREAT CIRCLE AIR ROUTES												STANDARD DEVIATION			
	DIRECT						RETURN						JAN APR JUL OCT			
	JAN	APR	JUL	OCT	APR	SEP	JAN	APR	JUL	OCT	APR	SEP	JAN	APR	JUL	OCT
12MIA	TC	TC	PLAT	LYALTEY												
5000	-6	-5	-1	-4	-10	-11	2	4	1	4	3	-1	5	8	6	7
10000	-13	-5	-10	-12	-18	-15	12	12	8	9	10	4	10	10	7	9
18000	-21	-22	-20	-17	-20	-30	17	20	19	16	18	10	14	12	9	11
12MIA	TC	TC	PLAT	LYALTEY												
5000	-5	-6	-5	-7	-15	-16	7	5	8	7	6	0	11	9	8	9
10000	-12	-5	-11	-10	-18	-20	10	8	10	8	9	2	12	11	8	10
18000	-21	-14	-16	-17	-21	-30	16	10	13	13	13	3	16	15	12	15
12MIA	TC	TC	PLAT	LYALTEY												
5000	-7	-6	-5	-6	-14	-10	6	5	9	6	6	0	12	10	9	9
10000	-12	-10	-11	-8	-15	-20	10	8	11	7	5	1	13	12	9	12
18000	-18	-13	-18	-15	-21	-30	14	10	15	12	12	2	18	16	13	16
12MIA	TC	TC	PLAT	LYALTEY												
5000	-5	-5	-6	-7	-14	-16	7	5	5	5	5	-1	13	10	9	10
10000	-14	-13	-12	-5	-21	-23	13	12	12	8	11	2	14	13	10	13
18000	-21	-20	-22	-17	-31	-34	17	17	21	16	17	7	19	17	13	15
12MIA	TC	TC	PLAT	LYALTEY												
5000	-3	-4	-6	-3	-11	-13	1	2	6	2	3	-3	11	10	8	10
10000	-5	-5	-5	-5	-13	-15	3	4	4	2	3	-4	12	12	9	11
18000	-13	-6	-7	-8	-20	-25	7	3	3	3	3	-6	17	16	13	16
12MIA	TC	TC	PLAT	LYALTEY												
5000	5	6	5	4	11	9	-5	-6	-5	-4	-6	-11	9	8	6	7
10000	12	13	10	10	20	11	-16	-13	-10	-11	-13	-19	10	10	8	9
18000	22	23	16	18	30	25	-27	-25	-17	-19	-22	-31	15	14	10	12
12MIA	TC	TC	PLAT	LYALTEY												
5000	5	6	10	4	11	9	-6	-6	-10	-4	-7	-13	12	5	7	8
10000	10	10	11	7	20	11	-12	-12	-11	-8	-11	-19	12	12	9	11
18000	17	15	16	12	28	25	-23	-24	-17	-15	-20	-31	19	17	12	14
12MIA	TC	TC	PLAT	LYALTEY												
5000	-7	-4	-4	-5	-11	-12	6	4	4	4	4	-1	10	9	7	8
10000	-12	-10	-13	-10	-18	-21	12	11	12	5	11	4	11	11	8	10
18000	-15	-15	-22	-17	-20	-30	15	17	21	16	17	8	15	13	10	12
12MIA	TC	TC	PLAT	LYALTEY												
5000	1	-2	-3	-1	-2	-9	0	1	2	0	0	-5	9	8	7	8
10000	-3	-4	-2	-2	-10	-11	0	2	1	0	0	-5	11	10	8	10
18000	-8	-7	-3	-4	-15	-17	2	2	0	0	0	-8	15	14	11	14

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**--LEASTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN LEAVES HEADWINDS.

EQUIVALENT HEADINGS AND STANCAPE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

PEAKPT IN FEET	EQUIVALENT HEADINGS												STANCAPE DEVIATION			
	DIRECT						RETURN						JAN APR JUL OCT			
	JAN	APR	JUL	OCT	APR	APR	JAN	APR	JUL	OCT	APR	APR	JAN	APR	JUL	OCT
IZMIR 5000 10000 15000	TUNIS												809 N.M.I.			
	TC	5	0	-4	-4	-11	7	4	0	4	3	-3	12	10	8	9
	5000	-15	-15	-5	-10	-20	14	12	8	5	10	2	13	12	10	12
IZMIR 5000 10000 15000	ZAGREB												1752 N.M.I.			
	TC	0	6	4	5	1	-5	-6	-0	-4	-6	-10	7	6	5	6
	5000	14	12	8	5	10	-15	-13	-8	-5	-12	-17	8	8	7	7
IZMIR 5000 10000 15000	ZAGREB												1261 N.M.I.			
	TC	-4	-5	-5	-5	-12	7	4	4	4	4	-1	11	5	8	9
	5000	-14	-14	-13	-10	-20	12	11	12	5	11	3	12	11	9	11
JACKSONVILLE 5000 10000 15000	KEY WEST												352 N.M.I.			
	TC	-2	-2	-2	-3	-12	5	4	4	3	4	-2	11	10	7	9
	5000	-3	-3	-3	-3	-10	1	1	3	3	2	-4	12	11	8	10
JACKSONVILLE 5000 10000 15000	MINNEAPOLIS												876 N.M.I.			
	TC	5	4	3	3	6	-9	-10	-4	-3	-7	-13	10	10	7	10
	5000	17	17	16	16	10	-20	-18	-5	-7	-12	-21	12	12	8	11
JACKSONVILLE 5000 10000 15000	KINGSTON												788 N.M.I.			
	TC	-3	-3	-3	-3	-11	5	3	5	3	3	-1	9	8	6	8
	5000	-1	-1	-1	-1	-10	6	6	4	3	2	-3	10	9	6	8
JACKSONVILLE 5000 10000 15000	LORING												1179 N.M.I.			
	TC	7	4	4	4	4	-9	-6	-5	-5	-7	-13	11	11	8	9
	5000	12	12	12	12	12	-16	-13	-7	-9	-12	-20	13	12	8	11
JACKSONVILLE 5000 10000 15000	MANAGUA												1124 N.M.I.			
	TC	-1	-1	-1	-1	-11	0	3	1	0	0	-4	8	7	5	7
	5000	-4	-4	-4	-4	-11	2	2	1	2	1	-2	8	8	5	7
JACKSONVILLE 5000 10000 15000	MCGUIRE												672 N.M.I.			
	TC	5	3	3	4	-2	-9	-6	-3	-3	-6	-13	12	11	8	11
	5000	11	10	5	7	0	-17	-14	-5	-6	-10	-19	14	13	9	12
	TC	15	11	6	13	11	-33	-21	-7	-18	-16	-32	19	16	10	10
	5000															

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.
--CENTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
--SINCE CENTES HEADINGS.

STANDARD DEVIATION FOR STANBAC LEVIATION IN FACTS FOR GREAT CIRCLE AIR ROUTES

STANBAC IN FACTS	STANBAC DEVIATION											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JANUARY	10	10	10	10	10	10	10	10	10	10	10	10
FEBRUARY	10	10	10	10	10	10	10	10	10	10	10	10
MARCH	10	10	10	10	10	10	10	10	10	10	10	10
APRIL	10	10	10	10	10	10	10	10	10	10	10	10
MAY	10	10	10	10	10	10	10	10	10	10	10	10
JUNE	10	10	10	10	10	10	10	10	10	10	10	10
JULY	10	10	10	10	10	10	10	10	10	10	10	10
AUGUST	10	10	10	10	10	10	10	10	10	10	10	10
SEPTEMBER	10	10	10	10	10	10	10	10	10	10	10	10
OCTOBER	10	10	10	10	10	10	10	10	10	10	10	10
NOVEMBER	10	10	10	10	10	10	10	10	10	10	10	10
DECEMBER	10	10	10	10	10	10	10	10	10	10	10	10

STANBAC DEVIATION FOR STANBAC LEVIATION IN FACTS FOR GREAT CIRCLE AIR ROUTES.

EQUIVALENT HEADINGS FOR STANDARD LEVEL-TICA IN KNOTS FOR GREAT CIRCLE AIR ROUTES

[illegible]

0001--COMPUTED FOR A 10-01 AIRSPEL.
0002--LEAVES ANNUAL EQUIVALENT PEACHINGS FOR INDICATED PER CENT RELIABILITIES.
PVAL; SICA LEAVES PEACHINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN ANITS FOR GREAT CIRCLE AIR ROUTES

PAGES IN FEET	E A S Y I Y A L E A T H E A C B I N D S O												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC				
HEADLINE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-3	-6	-9	-12	-15	-18	4	6	9	12	15	18	7	7	7	6
10000	-10	-3	-3	-12	-15	-18	5	7	9	11	14	17	8	8	7	7
15000	-31	-25	-18	-12	-15	-18	25	21	7	11	14	17	13	12	8	9
HEADLINE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-6	-7	-2	-6	-10	-14	6	6	7	3	5	2	1	6	5	5
10000	-16	-14	-5	-6	-11	-17	16	12	5	6	9	4	2	7	6	7
15000	-36	-30	-15	-15	-21	-31	33	26	6	14	19	10	8	12	10	8
HEADLINE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-3	-7	1	-4	-10	-14	3	7	8	-1	3	-2	-3	8	8	6
10000	-6	-2	-2	-3	-11	-13	8	5	3	3	4	-1	-2	9	7	6
15000	-34	-23	-13	-13	-24	-32	26	20	2	9	12	2	0	15	14	9
HEADLINE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-3	-3	-3	-13	-15	5	6	1	2	1	-5	-7	13	11	9
10000	-11	-1	-7	-6	-15	-17	4	2	0	2	1	-6	-8	14	13	10
15000	-16	-3	-10	-10	-21	-24	3	3	0	1	3	-10	-12	19	17	13
HEADLINE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	1	0	1	1	-8	-9	-3	-2	-1	-1	-2	-5	-11	12	11	9
10000	1	1	1	1	-7	-9	-3	-2	-3	-2	-4	-11	-13	13	12	9
15000	1	1	1	1	-10	-12	-12	-6	-5	-7	-8	-19	-22	18	16	12
HEADLINE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-6	-4	-4	-4	-14	-14	9	1	3	5	3	-2	-4	10	8	10
10000	-14	-8	-7	-10	-16	-20	12	4	6	8	7	0	-1	12	11	9
15000	-26	-17	-13	-13	-30	-33	20	12	10	15	13	3	1	16	16	12
HEADLINE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	1	1	1	-6	-6	-9	-4	-2	-3	-5	-14	-16	15	13	10
10000	6	1	1	1	-6	-6	-12	-7	-6	-7	-8	-18	-20	16	14	11
15000	12	5	3	1	-9	-9	-23	-16	-9	-13	-15	-26	-32	22	20	16
HEADLINE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	3	3	3	-2	-2	-7	-6	-2	-6	-6	-12	-14	11	10	8
10000	6	3	3	3	-2	-2	-11	-10	-3	-10	-9	-17	-19	11	11	9
15000	12	14	7	12	-11	-11	-20	-15	-9	-16	-16	-27	-29	16	15	12
HEADLINE	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	7	3	3	3	-2	-2	-9	-3	-3	-4	-6	-13	-14	11	10	8
10000	7	3	3	3	-2	-2	-12	-7	-7	-7	-9	-17	-19	11	11	9
15000	12	6	7	8	-4	-4	-20	-14	-11	-14	-15	-25	-28	16	15	12

HEADINGS---COMPUTED FOR A 120-KT AIRSPEED.

00A--CENTERS--ANAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
TABLES SHOW CENTERS HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	0000	075	000	075	000	075	000	075	000	075	000
REFLAVIN	TC	1	1	0	TCMBJCA	1	-6	-8	-8	-8	-8	-8	-8	-8	-8
5000	4	1	2	1	1	-6	-7	-7	-7	-7	-7	-7	-7	-7	-7
10000	5	4	3	2	3	-7	-7	-5	-5	-5	-5	-5	-5	-5	-5
REFLAVIN	TC	4	2	5	TCBSC	3	-3	-3	-3	-3	-3	-3	-3	-3	-3
5000	10	5	5	8	7	C	-2	-2	-2	-2	-2	-2	-2	-2	-2
10000	16	13	5	12	11	C	-3	-3	-3	-3	-3	-3	-3	-3	-3
REFLAVIN	TC	2	2	2	LCMBJCA	2	-5	-7	-7	-7	-7	-7	-7	-7	-7
5000	6	2	2	2	2	-4	-6	-6	-6	-6	-6	-6	-6	-6	-6
10000	8	5	4	4	5	-5	-8	-8	-8	-8	-8	-8	-8	-8	-8
KEY WEST	TC	7	3	2	KINDLEY AFB	3	-1	-3	-3	-3	-3	-3	-3	-3	-3
5000	10	13	3	5	7	C	0	0	0	0	0	0	0	0	0
10000	18	20	4	12	12	4	2	2	2	2	2	2	2	2	2
KEY WEST	TC	-5	-7	-4	KINGSTON	-6	-11	-12	-12	-12	-12	-12	-12	-12	-12
5000	-3	-2	-8	-5	-5	-11	-12	-12	-12	-12	-12	-12	-12	-12	-12
10000	7	8	-4	-2	C	-6	-8	-8	-8	-8	-8	-8	-8	-8	-8
KEY WEST	TC	4	4	3	LCMBJCA	4	-1	-2	-2	-2	-2	-2	-2	-2	-2
5000	8	8	5	6	6	C	0	0	0	0	0	0	0	0	0
10000	13	7	6	11	6	0	-1	-1	-1	-1	-1	-1	-1	-1	-1
KEY WEST	TC	-1	0	0	MANAGUA	C	-3	-4	-4	-4	-4	-4	-4	-4	-4
5000	C	-1	0	-1	-1	-5	-6	-6	-6	-6	-6	-6	-6	-6	-6
10000	C	-1	0	-2	-1	-7	-8	-8	-8	-8	-8	-8	-8	-8	-8
KEY WEST	TC	4	3	2	MCGUIRE AFB	2	-2	-4	-4	-4	-4	-4	-4	-4	-4
5000	6	6	3	4	4	-2	-3	-3	-3	-3	-3	-3	-3	-3	-3
10000	8	5	4	8	5	-2	-5	-5	-5	-5	-5	-5	-5	-5	-5
KEY WEST	TC	-1	-6	-4	MECELLIN	-3	-7	-8	-8	-8	-8	-8	-8	-8	-8
5000	-1	-3	-7	-4	-4	-9	-10	-10	-10	-10	-10	-10	-10	-10	-10
10000	3	2	-4	-3	-1	-6	-8	-8	-8	-8	-8	-8	-8	-8	-8

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

000--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCAE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWIND MEASUREMENTS										STANDARD DEVIATION		
	DIRECT					RETURN					JAN	APR	JUL OCT
	JAN	APR	JUL	OCT	***ASC	A75	A85	JAN	APR	JUL OCT	***A50	A75	A85
KEY WEST	TC	TC	TC	TC	NEW CUMBERLAND								
5000	4	3	2	2	2	-3	-4	-5	-4	-2	-4	-10	-11
10000	4	4	2	3	3	-3	-5	-9	-7	-3	-6	-13	-15
18000	4	1	3	6	3	-5	-7	-19	-11	-4	-11	-21	-24
KEY WEST	TC	TC	TC	TC	NEW ORLEANS								
5000	1	0	3	0	0	-5	-6	-2	0	-1	-2	-8	-9
10000	-8	-7	2	-2	-3	-11	-13	7	6	-2	2	-4	-6
18000	-22	-21	1	-9	-12	-24	-28	18	18	-1	8	-1	-3
KEY WEST	TC	TC	TC	TC	PARANARIEC								
5000	-6	-8	-12	-7	-10	-13	-14	8	8	12	9	6	5
10000	-4	-4	-12	-6	-7	-11	-12	4	4	12	7	2	1
18000	3	3	-7	-3	-2	-7	-8	-4	-4	8	3	0	-7
KEY WEST	TC	TC	TC	TC	PATICK AFB								
5000	4	2	4	4	4	-1	-3	-4	-5	-3	-4	-11	-12
10000	3	3	3	4	3	-3	-5	-4	-3	-3	-4	-11	-13
18000	2	1	3	4	2	-5	-8	-7	-6	-3	-5	-14	-16
KEY WEST	TC	TC	TC	TC	PORT AU PRINCE								
5000	-7	-5	-9	-6	-7	-12	-13	7	5	9	7	2	1
10000	-1	-1	-8	-4	-4	-10	-11	0	1	9	4	-2	-4
18000	6	11	-5	-1	1	-6	-7	-9	-12	5	1	-2	-15
KEY WEST	TC	TC	TC	TC	RAVEY AFB								
5000	-7	-5	-10	-7	-6	-13	-14	7	6	10	7	2	1
10000	-1	-1	-8	-4	-4	-10	-11	1	0	9	4	-2	-3
18000	6	11	-5	-1	1	-5	-7	-9	-12	5	1	-2	-14
KEY WEST	TC	TC	TC	TC	SAN JOSE								
5000	3	-3	0	2	0	-4	-5	-3	3	0	0	-5	-6
10000	0	-2	-1	-1	-2	-6	-7	0	2	0	0	-3	-5
18000	1	0	-1	-2	-1	-6	-8	-2	-1	0	0	-6	-7
KEY WEST	TC	TC	TC	TC	SAN SALVADOR								
5000	4	0	2	3	2	-2	-3	-4	-1	-2	-3	-8	-9
10000	0	-1	2	0	0	-5	-6	0	1	-2	0	-5	-6
18000	-3	-5	1	-2	-2	-8	-10	2	4	-1	2	-4	-6
KEY WEST	TC	TC	TC	TC	SANTO ESPINO								
5000	-7	-5	-9	-7	-6	-12	-13	7	6	10	7	2	1
10000	-1	-1	-9	-4	-4	-10	-12	1	1	9	4	-2	-3
18000	6	11	-5	-1	1	-6	-7	-9	-12	5	1	-2	-15

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

***--CENTIES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

WINDS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION			
	DIRECT						RETURN						JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	0000	075	075	075	075	075	075	075	JAN	APR	JUL	OCT
KEY WEST	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO
5000	5	4	3	2	2	2	2	2	2	2	2	2	10	10	7	9
10000	2	2	2	2	2	2	2	2	2	2	2	2	12	11	7	11
10000	0	-1	2	3	6	-8	-10	-10	-10	-10	-10	-10	16	16	9	14
KEY WEST	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO
5000	1	-4	-3	3	-2	-5	-9	-9	-9	-9	-9	-9	5	4	3	4
10000	1	-1	-2	-1	-1	-5	-5	-5	-5	-5	-5	-5	5	5	5	5
10000	0	0	-2	-1	-1	-5	-6	-6	-6	-6	-6	-6	7	7	5	6
KEY WEST	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	3	3	1	3	1	-3	-4	-4	-4	-4	-4	-4	8	7	5	7
10000	-1	-2	1	0	-1	-6	-7	-7	-7	-7	-7	-7	8	8	6	7
10000	-3	-3	1	-2	-2	-8	-9	-9	-9	-9	-9	-9	11	10	6	8
KEY WEST	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	5	4	3	3	3	-2	-3	-3	-3	-3	-3	-3	10	10	7	9
10000	7	7	4	5	5	-2	-2	-2	-2	-2	-2	-2	11	11	7	10
10000	10	6	5	9	7	-1	-3	-3	-3	-3	-3	-3	16	15	9	14
KEY WEST	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-3	-6	-10	-6	-8	-12	-12	-12	-12	-12	-12	-12	7	6	4	6
10000	-3	-3	-11	-5	-6	-11	-12	-12	-12	-12	-12	-12	7	7	6	6
10000	5	6	-6	-3	6	-7	-8	-8	-8	-8	-8	-8	10	9	6	8
KEY WEST	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	5	1	-5	3	1	-3	-4	-4	-4	-4	-4	-4	4	4	4	5
10000	3	5	3	7	4	0	0	0	0	0	0	0	5	5	5	5
10000	2	4	6	5	4	0	0	0	0	0	0	0	6	6	6	5
KEY WEST	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	7	6	-3	4	2	-1	-2	-2	-2	-2	-2	-2	4	5	4	5
10000	1	2	11	12	6	1	0	0	0	0	0	0	5	5	5	5
10000	-3	2	13	6	4	-1	-3	-3	-3	-3	-3	-3	7	7	6	5
KEY WEST	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-10	-7	-2	-3	-6	-11	-12	-12	-12	-12	-12	-12	7	6	6	6
10000	-6	-8	-6	-3	-7	-12	-13	-13	-13	-13	-13	-13	8	8	6	7
10000	-14	-15	-6	-5	-10	-16	-20	-20	-20	-20	-20	-20	13	10	8	8
KEY WEST	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-5	0	-3	-6	-11	-13	-13	-13	-13	-13	-13	7	8	8	7
10000	-1	-3	-5	1	-2	-8	-10	-10	-10	-10	-10	-10	9	9	8	8
10000	3	-1	-7	7	6	-8	-10	-10	-10	-10	-10	-10	14	12	9	9

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

000--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

HEADS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS

HEIGHT IN FEET	EQUIVALENT HEADWINDS														STANDARD DEVIATION			
	DIRECT				RETURN										JAN APR JUL OCT			
	JAN	APR	JUL	OCT	00AS0	A75	A85	JAN	APR	JUL	OCT	00AS0	A75	A85	JAN	APR	JUL	OCT
KHARTUM 5000 10000 18000	MAHMOU														1049 N.M.I.			
	4	-2	-3	2	C	-4	-5	-4	2	3	-2	0	-4	-5	4	5	5	5
	C	2	-3	-1	-1	-5	-6	0	-2	3	1	0	-3	-4	6	6	6	5
KHARTUM 5000 10000 18000	NAPLES														1789 N.M.I.			
	-5	-7	-4	-4	-6	-11	-12	9	7	4	4	5	1	0	7	6	5	6
	-8	-8	-8	-4	-6	-13	-14	6	7	8	3	6	1	0	8	8	6	7
KHARTUM 5000 10000 18000	NIAPEV														1771 N.M.I.			
	-15	-14	-9	-5	-11	-14	-20	6	10	8	3	7	0	-1	13	10	8	8
KHARTUM 5000 10000 18000	NICOSIA														1173 N.M.I.			
	-6	-4	-4	-4	-5	-10	-11	5	6	4	4	4	0	0	7	7	6	6
	-1	-3	-4	1	-2	-8	-9	0	1	4	-1	0	-4	-6	8	8	7	8
KHARTUM 5000 10000 18000	ACME														1887 N.M.I.			
	-5	-7	-4	-4	-6	-11	-12	9	7	4	4	5	1	0	7	6	5	6
	-8	-8	-8	-4	-6	-13	-14	7	7	8	3	6	1	0	8	8	6	7
KHARTUM 5000 10000 18000	TEHRAN														1548 N.M.I.			
	-15	-14	-10	-6	-11	-18	-20	8	10	8	3	7	0	-1	12	10	8	8
KHARTUM 5000 10000 18000	TEL AVIV														991 N.M.I.			
	-6	-8	-2	-4	-5	-10	-11	5	6	2	4	4	3	-1	7	7	6	6
	C	-2	-4	2	-1	-7	-8	0	1	4	-2	0	-5	-6	9	8	7	8
KHARTUM 5000 10000 18000	TLAIS														1741 N.M.I.			
	-10	-7	-1	-3	-5	-10	-12	10	7	1	3	4	0	0	7	6	5	6
	-5	-9	-7	-4	-8	-13	-14	8	8	6	3	6	1	0	8	8	6	7
KHARTUM 5000 10000 18000	ZAMECAN														1770 N.M.I.			
	-17	-16	-8	-6	-11	-15	-21	11	11	5	3	6	0	0	12	10	8	7
KHARTUM 5000 10000 18000																		
	C	0	4	-1	C	-3	-4	-1	C	-5	1	-1	-6	-7	5	6	5	5
	11	7	-2	0	3	-2	-4	-12	-6	2	0	-4	-11	-13	6	7	5	6
KHARTUM 5000 10000 18000																		
	21	14	-3	6	C	C	-2	-25	-17	3	-7	-11	-22	-24	10	5	6	7

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.
00A--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PIALS SICA CENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADINGS														STANDARC DEVIATION			
	DIRECT							RETURN										
	JAN	APR	JUL	OCT	00AS	A75	A85	JAN	APR	JUL	OCT	00AS	A75	A85				
KINGLEY AFB	TO																	
5000	-1	-5	-2	0	-3	-8	-9	0	5	1	0	1	-3	-5	8	8	1103 N.MI.	
10000	-1	-8	-1	-3	-4	-10	-11	0	7	1	3	2	-3	-4	10	9	6	
15000	-6	-11	-2	-7	-6	-14	-16	2	7	2	6	4	-2	-4	13	12	7	
KINGLEY AFB	TO																	
5000	9	10	8	6	6	2	1	-11	-11	-8	-7	-10	-15	-17	10	9	1061 N.MI.	
10000	15	16	10	11	12	6	4	-18	-17	-10	-12	-14	-21	-23	11	11	7	
15000	25	22	12	17	15	5	7	-29	-26	-13	-19	-21	-31	-34	15	14	9	
KINGLEY AFB	TC																	
5000	-4	-1	0	0	-1	-9	-11	1	0	-1	0	0	-8	-10	13	12	887 N.MI.	
10000	-8	-2	-1	-2	-3	-12	-14	0	-3	0	0	-1	-9	-11	15	14	9	
15000	-13	-9	-4	-4	-7	-19	-22	-6	-2	3	-5	-3	-15	-18	20	19	11	
KINGLEY AFB	TO																	
5000	1	-3	0	2	C	-4	-5	-2	3	3	-2	-1	-5	-6	7	6	1696 N.MI.	
10000	C	-6	1	-1	-1	-6	-8	0	5	-1	1	0	-4	-5	8	7	4	
15000	-6	-10	0	-5	-5	-12	-13	2	6	0	4	2	-3	-4	10	9	5	
KINGLEY AFB	TC																	
5000	-11	-8	-3	-3	-6	-15	-17	9	6	2	2	4	-3	-5	13	12	664 N.MI.	
10000	-23	-14	-7	-8	-12	-23	-26	19	9	6	6	9	0	-1	15	15	9	
15000	-30	-20	-11	-16	-21	-36	-40	24	20	9	9	14	3	0	20	19	11	
KINGLEY AFB	TO																	
5000	C	-2	-1	0	-1	-4	-5	-1	2	1	0	0	-3	-4	6	6	1684 N.MI.	
10000	2	-3	-1	-1	-1	-5	-7	-3	2	0	1	3	-4	-5	7	7	4	
15000	1	-3	0	-2	-1	-7	-8	-4	0	3	1	3	-6	-7	10	9	6	
KINGLEY AFB	TC																	
5000	4	4	5	4	4	-1	-3	-7	-5	-6	-6	-7	-13	-14	10	10	1885 N.MI.	
10000	8	7	6	6	6	C	-2	-13	-11	-7	-9	-10	-18	-19	12	11	8	
15000	12	9	7	10	5	C	-2	-25	-17	-11	-18	-18	-28	-31	16	15	11	
KINGLEY AFB	TC																	
5000	-12	-9	-4	-4	-8	-16	-18	10	7	3	3	5	-2	-4	12	12	752 N.MI.	
10000	-24	-14	-8	-9	-14	-24	-26	20	12	7	7	10	2	0	15	14	9	
15000	-36	-30	-12	-18	-23	-38	-42	28	23	10	11	16	5	3	19	19	10	
KINGLEY AFB	TC																	
5000	-10	-9	-4	-3	-7	-13	-14	9	9	4	3	6	0	-1	9	9	1307 N.MI.	
10000	-21	-16	-5	-7	-12	-21	-23	20	17	5	6	11	3	2	11	10	6	
15000	-37	-31	-6	-18	-24	-36	-39	35	25	5	17	20	8	6	14	14	8	

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**A--CENTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUILY ALENT HEADWINDS												STANDARD DEVIATION			
	DIRECT												RETURN			
	JAN	APR	JUL	OCT	0000	0000	0000	0000	0000	0000	0000	0000	JAN	APR	JUL	OCT
KINLEY AFB	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO
SOCO	-3	-6	-10	-6	-7	-11	-12	-12	-12	-12	-12	-12	3	5	9	5
LOCC	-1	-3	-6	-4	-4	-9	-10	-10	-10	-10	-10	-10	0	3	5	3
MOCC	6	4	-3	0	0	-5	-6	-6	-6	-6	-6	-6	-8	-6	3	0
KINLEY AFB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	7	5	4	3
SOCO	-7	-9	-3	-3	-6	-12	-14	-14	-14	-14	-14	-14	15	16	5	6
LOCC	-10	-17	-5	-6	-11	-19	-21	-21	-21	-21	-21	-21	27	26	6	15
MOCC	-30	-24	-6	-16	-15	-32	-35	-35	-35	-35	-35	-35	27	26	6	15
KINLEY AFB	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	2	5	3	1
SOCO	-2	-6	-3	-1	-4	-9	-10	-10	-10	-10	-10	-10	0	6	2	3
LOCC	0	-7	-2	-3	-3	-10	-11	-11	-11	-11	-11	-11	-1	4	3	5
MOCC	-3	-9	-3	-6	-6	-13	-15	-15	-15	-15	-15	-15	-1	4	3	5
KINLEY AFB	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	3	6	6	3
SOCO	-3	-6	-6	-3	-5	-11	-12	-12	-12	-12	-12	-12	-1	5	3	3
LOCC	0	-6	-4	-3	-4	-10	-11	-11	-11	-11	-11	-11	-6	-1	3	4
MOCC	0	-3	-3	-5	-5	-10	-12	-12	-12	-12	-12	-12	-3	4	0	2
KINLEY AFB	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	-3	4	0	2
SOCO	2	-4	0	1	0	-4	-5	-5	-5	-5	-5	-5	-2	4	0	2
LOCC	0	-5	1	-1	-1	-6	-7	-7	-7	-7	-7	-7	-2	4	0	2
MOCC	-3	-7	0	-4	-4	-9	-11	-11	-11	-11	-11	-11	0	4	0	2
KINLEY AFB	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	-2	1	0	1
SOCO	1	-2	0	1	0	-4	-5	-5	-5	-5	-5	-5	-2	1	0	1
LOCC	-2	-7	1	-2	-2	-6	-7	-7	-7	-7	-7	-7	1	6	-1	1
MOCC	-4	-12	0	-6	-6	-14	-15	-15	-15	-15	-15	-15	5	5	0	5
KINLEY AFB	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	2	6	4	2
SOCO	-3	-6	-4	-2	-4	-10	-11	-11	-11	-11	-11	-11	-1	6	3	3
LOCC	0	-7	-3	-3	-4	-10	-12	-12	-12	-12	-12	-12	-3	2	3	4
MOCC	0	-6	-3	-5	-5	-12	-13	-13	-13	-13	-13	-13	-3	2	3	4
KINLEY AFB	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	11	10	4	3
SOCO	-11	-10	-4	-3	-7	-15	-17	-17	-17	-17	-17	-17	22	16	7	7
LOCC	-24	-20	-7	-8	-14	-24	-27	-27	-27	-27	-27	-27	27	30	9	17
MOCC	-40	-33	-9	-19	-24	-35	-43	-43	-43	-43	-43	-43	27	30	9	17
KINLEY AFB	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	-2	2	0	0
SOCO	-11	-10	-4	-3	-7	-15	-17	-17	-17	-17	-17	-17	1	6	-1	1
LOCC	-24	-20	-7	-8	-14	-24	-27	-27	-27	-27	-27	-27	1	6	-1	1
MOCC	-40	-33	-9	-19	-24	-35	-43	-43	-43	-43	-43	-43	4	8	0	5
KINLEY AFB	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	-2	2	0	0
SOCO	1	-3	0	1	0	-4	-5	-5	-5	-5	-5	-5	1	6	-1	1
LOCC	-2	-7	0	-2	-2	-6	-7	-7	-7	-7	-7	-7	1	6	-1	1
MOCC	-8	-12	0	-6	-6	-13	-15	-15	-15	-15	-15	-15	4	8	0	5

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.
 000--DEACTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS										STANDARD DEVIATION			
	DIRECT					RETURN					JAN APR JUL OCT			
	JAN	APR	JUL	OCT	WASC	A75	A85	JAN	APR	JUL	OCT	WASC	A75	A85
KINGLEY AFB	TO													
5000	-9	-6	-2	-3	-5	-13	-16	6	4	1	2	3	-4	-6
10000	-19	-10	-5	-6	-10	-20	-22	13	4	4	4	5	-3	-5
15000	-25	-22	-9	-12	-17	-31	-34	12	12	6	4	8	-3	-5
KINGLEY AFB	TC													
5000	-1	-4	-4	-1	-3	-8	-9	0	3	4	1	2	-2	-3
10000	0	-5	-3	-3	-3	-8	-10	-1	4	3	3	2	-3	-4
15000	2	-1	-2	-3	-2	-8	-10	-5	-1	2	2	0	-7	-9
KINGSTON	TO													
5000	0	-3	-2	0	-2	-4	-5	0	3	2	1	1	-1	-1
10000	1	-1	-2	0	-1	-4	-5	-2	1	1	0	0	-3	-4
15000	1	0	-1	0	0	-4	-5	-1	0	1	0	0	-4	-5
KINGSTON	TO													
5000	2	3	3	2	2	-2	-3	-4	-4	-3	-2	-4	-9	-10
10000	0	6	3	4	3	-2	-3	-5	-9	-4	-5	-6	-12	-13
15000	2	1	3	7	3	-3	-5	-15	-10	-5	-12	-10	-19	-21
KINGSTON	TO													
5000	11	1	8	8	7	2	1	-11	-1	-7	-8	-7	-12	-13
10000	6	3	11	4	6	1	0	-6	-3	-11	-4	-7	-11	-13
15000	3	1	7	3	3	-2	-3	-3	-1	-6	-3	-4	-10	-11
KINGSTON	TO													
5000	1	3	3	1	2	-3	-4	-3	-3	-3	-2	-3	-8	-10
10000	-1	3	2	1	1	-4	-5	-1	-6	-3	-3	-4	-10	-11
15000	-3	-3	2	4	0	-7	-9	-7	-4	-3	-8	-6	-13	-15
KINGSTON	TO													
5000	4	-5	-1	-1	-1	-5	-6	-5	6	1	1	0	-3	-4
10000	0	-2	-5	-2	-2	-7	-8	-1	2	4	2	1	-2	-3
15000	2	0	-3	-1	-1	-6	-7	-2	0	2	1	0	-5	-6
KINGSTON	TO													
5000	1	2	2	1	1	-3	-4	-2	-3	-2	-2	-3	-8	-9
10000	-2	2	2	2	1	-4	-6	-1	-4	-2	-3	-3	-9	-10
15000	-4	-5	1	3	-1	-5	-12	-5	-2	-2	-6	-4	-12	-14
KINGSTON	TO													
5000	4	3	6	3	4	0	-1	-4	-3	-6	-3	-5	-9	-10
10000	-1	-1	6	1	1	-5	-6	0	0	-6	-1	-2	-8	-9
15000	-14	-15	3	-2	-4	-16	-19	10	12	-3	1	3	-4	-5

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**A--CENOTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADWINDS AND STANCAE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUVALENT HEADWINDS												STANCAE DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT
KINGSTON																
5000	-5	-9	-13	-10	-11	-14	-15									
10000	-7	-7	-14	-8	-5	-13	-14									
18000	C	0	-10	-5	-4	-5	-11									
KINGSTON																
5000	3	4	5	3	3	-1	-2									
10000	C	1	5	4	2	-3	-5									
18000	-9	-8	3	2	-2	-11	-13									
KINGSTON																
5000	-10	-6	-11	-9	-10	-14	-16									
10000	-4	-3	-12	-5	-7	-13	-15									
18000	C	3	-6	-3	-3	-5	-11									
KINGSTON																
5000	-10	-7	-12	-9	-10	-14	-16									
10000	-4	-3	-12	-5	-7	-13	-15									
18000	C	4	-6	-3	-3	-5	-11									
KINGSTON																
5000	11	-2	5	2	2	-2	-4									
10000	6	2	7	2	4	-2	-4									
18000	3	2	4	2	2	-2	-4									
KINGSTON																
5000	11	5	9	9	8	4	3									
10000	6	4	12	5	6	1	0									
18000	2	0	8	3	3	-2	-4									
KINGSTON																
5000	-10	-7	-12	-9	-10	-14	-16									
10000	-4	-3	-12	-5	-7	-13	-15									
18000	C	4	-7	-3	-3	-5	-11									
KINGSTON																
5000	2	3	4	2	2	-2	-4									
10000	-2	0	3	3	1	-4	-6									
18000	-5	-8	2	1	-2	-11	-14									
KINGSTON																
5000	3	4	5	3	3	-1	-2									
10000	-2	0	3	3	1	-4	-6									
18000	-5	-8	2	1	-2	-11	-14									
KINGSTON																
5000	3	-3	-2	0	0	-1	-4									
10000	4	0	0	1	1	-2	-3									
18000	2	0	0	0	0	-4	-5									

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

NO--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCAE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION			
	DIRECT					RETURN					JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	0000	A75	A85	JAN	APR	JUL	OCT	0000	A75	A85
KINGSTON	TCNCONTIA #8										620 N.M.			
5000	11	4	10	9	6	4	2	-11	-4	-9	-9	-9	-13	-14
10000	6	4	12	5	6	1	0	-5	-3	-12	-5	-7	-12	-13
18000	2	0	8	3	3	-2	-4	-3	0	-7	-3	-4	-10	-11
KINGSTON	WESTOVER #8										1470 N.M.			
5000	2	3	3	2	2	-2	-4	-3	-4	-3	-2	-4	-9	-10
10000	-1	4	3	3	2	-3	-5	-3	-7	-3	-4	-5	-10	-12
18000	-1	-1	2	5	1	-6	-8	-10	-6	-3	-9	-7	-15	-17
KINGSTON	WILLEMSTAD										901 N.M.			
5000	-6	-8	-12	-9	-5	-14	-15	6	8	12	9	8	4	3
10000	-6	-5	-14	-6	-6	-14	-15	6	6	14	6	7	2	1
18000	1	1	-8	-4	-3	-5	-11	-1	-2	9	5	2	-4	-6
KINSHASA/NEJILI	LAGOS										992 N.M.			
5000	1	3	1	2	1	-1	-2	-1	-3	-1	-2	-2	-5	-6
10000	5	8	6	7	6	2	1	-5	-8	-6	-8	-7	-11	-12
18000	5	4	4	3	4	0	-1	-9	-4	-4	-3	-5	-11	-12
KINSHASA/NEJILI	NAIRCBI										1201 N.M.			
5000	-1	-5	-2	-3	-3	-6	-7	2	5	3	3	3	0	0
10000	-10	-10	-2	-9	-5	-12	-13	11	10	3	9	8	4	3
18000	-13	-8	-5	-5	-8	-13	-14	14	9	5	6	8	3	2
KINSHASA/NEJILI	NIAMEY										1206 N.M.			
5000	2	3	2	4	2	0	-1	-1	-3	-1	-3	-2	-6	-6
10000	4	7	5	6	5	1	1	-4	-7	-5	-7	-6	-10	-11
18000	6	4	5	3	4	0	-1	-7	-4	-5	-3	-5	-10	-11
KINSHASA/NEJILI	ROBERTS FIELD										1072 N.M.			
5000	2	5	0	1	1	-1	-1	-2	-4	0	0	-2	-5	-6
10000	10	10	7	10	5	6	5	-9	-10	-7	-10	-9	-12	-13
18000	11	5	6	4	6	1	0	-12	-5	-6	-4	-7	-12	-13
LAGOS	LAS PALMAS										1049 N.M.			
5000	0	-1	4	2	0	-3	-4	0	1	-4	-2	-1	-5	-6
10000	0	9	9	6	4	0	-1	0	-5	-10	-7	-6	-11	-12
18000	-5	-2	7	4	0	-7	-9	5	0	-8	-4	-2	-8	-9
LAGOS	LLQA, MALTA										1001 N.M.			
5000	-4	-1	0	-2	-2	-6	-7	4	1	0	2	1	-2	-3
10000	3	3	-7	-4	-1	-7	-9	-4	-4	6	3	0	-6	-7
18000	5	8	0	3	2	-1	-3	-11	-11	-1	-4	-7	-13	-15

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**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION					
	DIRECT						RETURN											
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**ASO	A75	A85	JAN	APR	JUL	OCT
LAGCS		TC		LUXCR														
5000	-4	-3	3	-3	-2	-6	-7	4	3	-3	3	1	-2	-3	5	5	5	5
10000	2	1	-9	-9	-4	-10	-11	-3	-2	9	9	2	-3	-4	6	5	5	5
18000	11	3	-9	3	C	-6	-8	-12	-4	9	0	-2	-9	-11	8	7	6	6
LAGCS		TC		NTAPEY														
5000	-1	0	2	3	C	-3	-5	1	C	-2	-3	-1	-6	-7	6	7	7	7
10000	4	2	0	0	1	-4	-5	-4	-2	-1	-2	-3	-8	-9	7	6	6	6
18000	8	3	2	0	2	-3	-4	-8	-3	-3	0	-4	-10	-12	10	9	8	8
LAGCS		TC		OFAN														
5000	-3	-1	1	0	-1	-5	-6	3	1	-1	0	0	-3	-4	6	6	6	6
10000	C	2	3	-2	C	-5	-6	-1	-3	-1	0	-1	-6	-8	8	8	8	8
18000	-4	2	3	2	C	-5	-6	-2	-6	-4	-3	-4	-10	-11	10	9	7	7
LAGCS		TO		PCRT LVALTEY														
5000	-2	-1	4	0	C	-4	-5	2	1	-4	0	0	-5	-6	6	6	6	6
10000	C	2	4	0	1	-3	-4	0	-3	-5	-1	-3	-8	-9	7	6	6	6
18000	-7	0	4	2	C	-6	-7	1	-3	-5	-3	-3	-9	-10	10	8	7	7
LAGCS		TO		RCBERTS FIELD														
5000	5	5	-2	0	1	-3	-4	-5	-5	2	0	-2	-7	-8	7	7	7	7
10000	10	11	9	17	11	6	5	-9	-11	-9	-16	-12	-16	-18	5	5	5	5
18000	7	5	9	6	6	1	C	-7	-7	-4	-5	-7	-12	-14	9	8	7	7
LAGCS		TC		TUNIS														
5000	-5	-1	0	-1	-2	-6	-7	5	1	0	1	1	-2	-3	6	5	5	5
10000	1	2	-6	-4	-2	-7	-8	-3	-3	-4	3	0	-5	-7	7	6	6	6
18000	2	6	1	3	3	-2	-3	-8	-10	-2	-4	-6	-12	-14	10	8	7	7
LAJES FIELD		TO		LAS PALMAS														
5000	2	3	3	4	3	-3	-5	-3	-4	-3	-5	-4	-11	-13	10	10	10	10
10000	7	5	4	5	5	-2	-3	-8	-7	-5	-6	-7	-14	-16	12	11	9	12
18000	12	11	7	8	5	C	-1	-15	-13	-7	-10	-11	-21	-23	15	15	10	13
LAJES FIELD		TO		LISBON														
5000	6	4	6	2	5	-3	-5	-7	-4	-6	-10	-7	-15	-17	11	10	8	20
10000	10	7	9	11	5	1	0	-12	-8	-9	-12	-11	-19	-20	13	14	9	11
18000	15	12	14	16	14	4	1	-18	-15	-15	-18	-17	-27	-30	18	16	12	15
LAJES FIELD		TC		LCRING AFE														
5000	-13	-9	-11	-12	-12	-18	-20	11	7	10	11	9	3	1	11	10	8	10
10000	-22	-13	-15	-20	-16	-25	-27	18	11	14	18	15	7	6	13	11	8	11
18000	-35	-23	-23	-30	-28	-38	-41	27	17	21	25	22	12	10	17	16	11	14

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

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MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS														STANDARD DEVIATION
	DIRECT							RETURN							
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**ASO	A75	A85	
LAJES FIELD															
5000	6	4	5	3	4	-1	-2	-7	-4	-5	-7	-6	-12	-13	1975 N.M.I.
10000	12	9	13	11	10	4	3	-13	-10	-10	-12	-12	-18	-19	8 6 14
18000	17	15	17	16	16	5	7	-20	-17	-18	-18	-19	-26	-28	10 9 7 9
LAJES FIELD															
5000	8	2	6	7	5	-2	-4	-10	-3	-7	-11	-8	-16	-18	1403 N.M.I.
10000	11	6	9	12	5	1	0	-14	-8	-13	-14	-12	-20	-22	12 10 9 16
18000	12	7	14	15	12	1	-1	-19	-11	-16	-20	-17	-28	-30	13 12 9 11
LAJES FIELD															
5000	6	3	5	3	4	-2	-3	-7	-3	-6	-7	-6	-13	-14	1892 N.M.I.
10000	11	3	11	11	10	4	2	-13	-5	-11	-12	-12	-18	-19	9 8 7 16
18000	14	12	18	16	15	7	5	-18	-15	-19	-18	-18	-26	-28	10 10 7 9
LAJES FIELD															
5000	-2	-2	-2	-4	-3	-11	-12	-1	C	1	1	0	-7	-9	1509 N.M.I.
10000	-6	-3	-6	-7	-6	-14	-16	0	C	4	3	1	-6	-8	13 11 9 12
18000	-9	-8	-10	-13	-11	-22	-24	-3	C	5	3	1	-10	-13	14 13 10 12
LAJES FIELD															
5000	6	4	5	4	4	-1	-3	-6	-4	-5	-8	-6	-13	-14	1275 N.M.I.
10000	10	8	8	13	8	2	0	-12	-5	-8	-11	-10	-17	-19	9 9 7 10
18000	16	14	14	16	14	6	4	-19	-16	-15	-17	-17	-26	-28	11 11 8 10
LAJES FIELD															
5000	5	4	5	4	4	-2	-4	-5	-4	-4	-8	-5	-13	-14	1021 N.M.I.
10000	10	8	8	9	8	1	0	-11	-5	-8	-10	-10	-17	-19	10 10 7 10
18000	16	13	13	15	14	5	3	-19	-16	-13	-17	-16	-26	-28	12 12 8 10
LAJES FIELD															
5000	8	2	5	7	5	-2	-4	-11	-3	-6	-11	-8	-16	-18	1350 N.M.I.
10000	11	6	8	11	8	C	-1	-15	-8	-10	-14	-12	-21	-23	12 11 9 15
18000	11	6	11	13	10	C	-3	-20	-11	-15	-19	-17	-28	-30	14 13 10 12
LAJES FIELD															
5000	7	2	6	6	5	-1	-3	-8	-3	-7	-10	-7	-14	-16	1652 N.M.I.
10000	11	6	13	12	5	2	1	-13	-7	-13	-13	-11	-18	-20	11 9 8 15
18000	12	6	15	16	13	3	0	-18	-12	-17	-20	-17	-27	-29	12 11 8 10
LAJES FIELD															
5000	6	2	5	3	4	-2	-4	-7	-3	-6	-8	-6	-13	-14	1804 N.M.I.
10000	11	8	11	11	10	4	2	-12	-5	-11	-12	-12	-18	-19	9 8 7 16
18000	13	12	17	16	14	6	4	-17	-14	-18	-18	-17	-25	-27	11 10 7 9

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MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS														STANDARD DEVIATION			
	DIRECT				RETURN													
	JAN	APR	JUL	OCT	**A-C	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85	JAN	APR	JUL	OCT
LAJES FIELD																		
5000	0	-1	-1	-2	-1	-8	-10	-4	C	0	0	-1	-8	-10	11	10	1874 N.M.I.	
10000	-2	-2	-3	-4	-3	-11	-13	-2	0	1	0	0	-8	-10	13	12	8 11	
18000	-6	-6	-8	-9	-8	-18	-20	-6	C	3	0	0	-11	-14	17	16	9 11	
LAJES FIELD																		
5000	7	3	6	2	5	-2	-5	-7	-3	-6	-9	-6	-14	-16	10	10	1082 N.M.I.	
10000	10	7	9	12	5	1	0	-12	-8	-9	-13	-11	-19	-21	13	12	8 24	
18000	14	12	16	16	14	5	2	-16	-14	-17	-18	-17	-27	-29	17	15	9 11	
LAJES FIELD																		
5000	6	4	5	3	4	-1	-2	-7	-4	-5	-7	-6	-12	-14	8	8	1761 N.M.I.	
10000	11	5	10	11	10	4	2	-12	-10	-10	-12	-11	-18	-19	10	10	6 16	
18000	16	14	17	16	15	8	6	-19	-17	-18	-18	-19	-26	-28	14	12	7 9	
LAJES FIELD																		
5000	7	2	6	2	4	-2	-5	-7	-3	-6	-9	-6	-14	-16	10	9	1245 N.M.I.	
10000	11	7	10	12	10	3	1	-12	-8	-10	-13	-11	-18	-20	12	12	8 22	
18000	14	11	16	16	14	4	2	-18	-14	-17	-19	-18	-27	-29	16	15	10 14	
LAS PALMAS																		
5000	1	1	2	-1	C	-3	-6	-1	-2	-2	0	-2	-7	-9	9	10	719 N.M.I.	
10000	-1	5	6	4	3	-3	-5	0	-6	-6	-5	-5	-12	-14	11	11	8 11	
18000	-2	4	8	5	4	-5	-7	-2	-8	-9	-7	-7	-16	-18	15	14	10 12	
LAS PALMAS																		
5000	3	4	0	1	1	-2	-4	-3	-4	0	-1	-2	-7	-9	7	8	1587 N.M.I.	
10000	5	12	5	8	8	2	1	-11	-13	-6	-9	-10	-16	-18	9	9	6 7	
18000	17	21	13	14	15	5	7	-21	-23	-13	-14	-18	-25	-28	13	11	8 9	
LAS PALMAS																		
5000	0	0	1	0	C	-5	-6	-1	-1	-2	-1	-2	-8	-9	9	9	1629 N.M.I.	
10000	0	3	5	4	3	-3	-5	-2	-5	-6	-6	-6	-12	-13	11	10	7 9	
18000	-3	2	8	5	3	-5	-8	-3	-6	-11	-9	-8	-16	-18	14	13	10 12	
LAS PALMAS																		
5000	1	3	2	1	1	-3	-4	-2	-3	-2	-2	-3	-8	-9	8	8	1649 N.M.I.	
10000	7	10	7	7	7	1	0	-8	-11	-8	-8	-9	-15	-17	10	9	6 7	
18000	10	16	15	12	13	0	4	-14	-18	-16	-14	-16	-23	-25	13	11	8 10	
LAS PALMAS																		
5000	1	2	-5	-2	-1	-6	-7	-1	-2	5	2	0	-4	-5	6	7	1304 N.M.I.	
10000	2	-4	-11	-4	-5	-11	-12	-2	3	10	4	3	-2	-4	8	8	6 8	
18000	13	3	-7	-4	C	-7	-9	-16	-6	7	4	-1	-12	-14	10	9	7 8	

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EQUIVALENT HEADINGS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS												STANDARD DEVIATION			
	DIRECT						RETURN						JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**ASO	A75	A85		
LAS PALMAS	TC	3	3	J	2	-3	-4	-2	-4	-2	0	-2	-8	-9	8	882 N.MI.
5000	2	3	3	J	2	-3	-4	-2	-4	-2	0	-2	-8	-9	9	7
10000	5	11	7	7	7	0	-1	-6	-11	-7	-7	-8	-15	-17	11	8
18000	10	16	12	12	12	4	2	-14	-18	-13	-13	-15	-23	-25	15	10
LAS PALMAS	TC	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	9	591 N.MI.
5000	2	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	10	8
10000	2	10	8	6	6	C	-2	-3	-11	-8	-6	-8	-15	-16	11	8
18000	6	13	11	10	10	1	-1	-10	-15	-11	-11	-12	-21	-23	15	11
LAS PALMAS	TC	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	9	1720 N.MI.
5000	2	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	10	8
10000	2	10	8	6	6	C	-2	-3	-11	-8	-6	-8	-15	-16	11	8
18000	6	13	11	10	10	1	-1	-10	-15	-11	-11	-12	-21	-23	15	11
LAS PALMAS	TC	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	9	1719 N.MI.
5000	2	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	10	8
10000	2	10	8	6	6	C	-2	-3	-11	-8	-6	-8	-15	-16	11	8
18000	6	13	11	10	10	1	-1	-10	-15	-11	-11	-12	-21	-23	15	11
LAS PALMAS	TC	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	9	1332 N.MI.
5000	2	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	10	8
10000	2	10	8	6	6	C	-2	-3	-11	-8	-6	-8	-15	-16	11	8
18000	6	13	11	10	10	1	-1	-10	-15	-11	-11	-12	-21	-23	15	11
LAS PALMAS	TC	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	9	1596 N.MI.
5000	2	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	10	8
10000	2	10	8	6	6	C	-2	-3	-11	-8	-6	-8	-15	-16	11	8
18000	6	13	11	10	10	1	-1	-10	-15	-11	-11	-12	-21	-23	15	11
LAS PALMAS	TC	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	9	945 N.MI.
5000	2	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	10	8
10000	2	10	8	6	6	C	-2	-3	-11	-8	-6	-8	-15	-16	11	8
18000	6	13	11	10	10	1	-1	-10	-15	-11	-11	-12	-21	-23	15	11
LAS PALMAS	TC	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	9	1398 N.MI.
5000	2	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	10	8
10000	2	10	8	6	6	C	-2	-3	-11	-8	-6	-8	-15	-16	11	8
18000	6	13	11	10	10	1	-1	-10	-15	-11	-11	-12	-21	-23	15	11
LAS PALMAS	TC	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	9	1115 N.MI.
5000	2	3	3	0	1	-4	-5	-2	-3	-3	0	-2	-8	-10	10	8
10000	2	10	8	6	6	C	-2	-3	-11	-8	-6	-8	-15	-16	11	8
18000	6	13	11	10	10	1	-1	-10	-15	-11	-11	-12	-21	-23	15	11

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*														STANDARD DEVIATION			
	DIRECT							RETURN							JAN APR JUL OCT			
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**ASO	A75	A85				
LA PAZ															576 N.M.I.			
5000	8	6	4	7	6	2	1	-7	-6	-3	-6	-6	-10	-11	5	5	6	7
10000	3	2	-1	3	1	-3	-4	-2	-2	1	-3	-2	-7	-8	8	5	8	7
18000	C	-1	-7	0	-2	-5	-10	-1	1	6	0	0	-5	-7	10	9	11	8
LA PAZ															1432 N.M.I.			
5000	5	4	4	4	4	1	1	-4	-3	-3	-3	-4	-6	-7	4	3	4	4
10000	1	4	0	1	1	-1	-2	-1	-4	-1	-2	-3	-6	-7	5	4	6	5
18000	C	0	1	2	C	-3	-5	0	C	-2	-2	-1	-6	-7	7	7	7	5
LA PAZ															1526 N.M.I.			
5000	-4	-4	-3	-2	-4	-6	-7	3	3	3	2	2	0	0	4	4	3	4
10000	-4	-4	-8	-7	-6	-10	-11	4	4	7	7	5	1	0	5	5	6	5
18000	-3	-3	-2	-5	-4	-8	-9	2	2	1	5	2	-1	-2	7	6	7	5
LA PAZ															1458 N.M.I.			
5000	-2	-4	0	-1	-3	-6	-8	2	5	0	0	2	-1	-2	5	3	5	6
10000	3	1	12	5	4	C	-1	-3	-1	-12	-5	-5	-11	-12	7	6	7	7
18000	4	4	15	13	8	1	0	-5	-4	-10	-14	-10	-18	-19	10	8	11	9
LA PAZ															1846 N.M.I.			
5000	3	5	4	3	3	1	1	-2	-4	-3	-3	-4	-6	-6	4	3	3	3
10000	2	5	3	4	3	C	0	-2	-4	-4	-4	-4	-7	-7	4	3	5	4
18000	3	1	3	4	2	-1	-2	-3	-1	-3	-4	-3	-7	-8	7	6	6	5
LA PAZ															293 N.M.I.			
5000	-9	-7	-4	-4	-7	-11	-12	9	7	5	5	6	2	1	5	5	6	7
10000	-2	-3	8	-1	C	-7	-8	2	4	-8	1	0	-6	-8	9	7	9	9
18000	3	2	11	5	4	-2	-4	-3	-2	-12	-4	-5	-13	-15	12	9	14	9
LA PAZ															1026 N.M.I.			
5000	-6	-4	-3	-3	-6	-10	-11	9	4	3	5	5	0	0	6	6	7	7
10000	C	-1	-6	1	-1	-7	-9	0	1	5	-1	3	-4	-6	9	7	8	7
18000	-2	0	-5	-4	-3	-10	-12	0	-1	0	0	0	-7	-9	12	8	13	10
LA PAZ															1052 N.M.I.			
5000	7	5	4	6	5	2	1	-6	-5	-3	-5	-5	-8	-9	4	4	5	5
10000	4	5	1	5	4	C	-1	-3	-5	-1	-5	-4	-8	-9	6	4	7	6
18000	4	0	-1	4	1	-4	-5	-4	C	1	-4	-2	-7	-9	8	7	9	6
LA PAZ															1722 N.M.I.			
5000	3	1	2	1	1	0	0	-2	-1	-1	-1	-2	-4	-4	3	3	3	3
10000	C	2	-1	-1	C	-3	-4	0	-2	0	0	0	-3	-4	4	4	5	4
18000	-3	-1	0	0	-1	-5	-6	2	1	0	0	0	-3	-4	7	6	6	5

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*												STANDARD DEVIATION			
	DIRECT					RETURN										
	JAN	APR	JUL	OCT	A75	A85	JAN	APR	JUL	OCT	A75	A85	JAN	APR	JUL	OCT
LIMA																
5000	TC	4	4	2	2	0	0	-3	-3	-1	-2	-5	4	3	4	1556 N.MI.
10000	C	0	3	3	2	-1	-1	0	-2	-3	-3	-7	4	3	5	3
18000	3	1	3	3	2	-1	-2	-3	-1	-4	-4	-9	7	6	6	5
LIMA																
5000	TC	2	3	1	2	0	-2	-1	-2	0	-2	-4	4	3	4	1102 N.MI.
10000	C	0	0	-1	-1	-4	2	0	0	1	0	-3	5	4	6	3
18000	-2	-1	0	-1	-1	-6	1	1	0	0	0	-4	8	7	7	6
LIMA																
5000	TC	-5	-4	-5	-5	-7	5	5	5	5	5	2	4	3	3	1674 N.MI.
10000	C	-6	-10	-8	-6	-11	6	6	10	8	7	4	4	4	5	3
18000	-7	-4	-4	-9	-7	-11	6	4	4	9	5	1	7	6	7	5
LIMA																
5000	TC	1	1	0	0	-1	0	0	-1	0	-1	-3	4	3	3	1862 N.MI.
10000	C	0	-1	-1	-1	-4	2	0	0	0	0	-3	4	4	5	3
18000	-4	-1	0	-1	-2	-6	3	1	0	1	0	-4	7	6	6	5
LIMA																
5000	TC	-1	0	-1	-1	-3	0	1	0	1	0	-2	4	3	3	1927 N.MI.
10000	C	0	-3	-2	-3	-6	3	0	2	2	1	-1	4	4	5	3
18000	-5	-2	-1	-3	-3	-7	5	2	1	3	2	-1	7	6	5	5
LIMA																
5000	TC	1	4	2	2	0	0	-3	-3	-1	-2	-5	4	3	4	1300 N.MI.
10000	C	0	3	2	1	-1	0	-2	-2	-5	-2	-7	4	4	6	3
18000	2	1	3	3	2	-2	-3	-1	-3	-3	-3	-9	7	7	6	5
LIMA																
5000	TC	1	4	2	2	0	-1	-3	-3	-1	-3	-6	4	3	4	1706 N.MI.
10000	C	0	3	2	1	-1	0	-2	-2	-5	-2	-7	4	3	5	3
18000	2	1	3	3	2	-2	-3	-1	-3	-3	-4	-9	7	6	6	5
LIMA																
5000	TC	-6	-3	-5	-6	-9	7	0	4	0	5	2	4	4	5	864 N.MI.
10000	C	-2	3	-3	-1	-6	3	3	-3	3	1	-3	7	3	7	6
18000	0	1	7	0	1	-4	0	-1	-8	0	-2	-9	9	0	10	0
LIMA																
5000	TC	-8	-4	-5	-6	-10	9	5	5	0	0	2	5	5	6	1327 N.MI.
10000	C	0	-3	3	0	-5	0	0	2	-3	0	-5	8	6	0	6
18000	1	3	1	2	1	-4	-3	-4	-6	-5	-5	-12	10	0	12	7

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWIND																			STANDARD DEVIATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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	JAN	APR	JUL	CCT	00DEC	A75	A05	JAN	APR	JUL	DEC	00DEC	A75	A05	JAN	APR	JUL	DEC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCRD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**ASO	A75	A85	
LISBCA															
5000	6	3	5	4	4	-2	-4	-6	-4	-4	-4	-5	-12	-14	440 N.MI.
10000	11	9	7	9	8	0	-1	-12	-10	-8	-10	-10	-19	-21	11 11
18000	18	15	14	14	15	5	2	-21	-18	-16	-16	-18	-28	-31	14 13
LISPCA															18 16
5000	3	0	2	3	2	-5	-6	-3	-1	-2	-3	-3	-10	-12	292 N.MI.
10000	8	3	2	2	3	-4	-6	-9	-5	-2	-4	-5	-14	-16	11 12
18000	13	6	1	6	5	-4	-7	-17	-9	-4	-9	-10	-21	-24	14 13
LISBQA															19 17
5000	-1	0	0	1	C	-8	-10	-1	0	0	-3	-1	-9	-11	1024 N.MI.
10000	-2	0	2	2	C	-7	-13	-1	-2	-4	-5	-4	-12	-14	13 11
18000	-7	-2	3	0	-1	-13	-16	0	-2	-8	-6	-5	-16	-19	14 13
LISBKA															20 19
5000	1	0	2	2	1	-6	-7	-2	-1	-3	-3	-3	-10	-12	1014 N.MI.
10000	3	4	9	6	6	-1	-3	-6	-6	-9	-9	-8	-16	-18	12 11
18000	2	6	14	13	8	-2	-5	-9	-10	-16	-15	-13	-24	-26	13 12
LISBKA															18 16
5000	2	2	-3	0	C	-4	-5	-2	-2	3	0	0	-5	-6	1950 N.MI.
10000	C	-4	-5	-3	-4	-8	-9	0	3	4	2	2	-2	-3	6 6
18000	-1	-5	-5	-3	-4	-5	-11	-2	2	4	2	1	-4	-5	7 6
LISBKA															9 8
5000	4	2	3	3	3	-3	-5	-5	-3	-4	-3	-4	-11	-12	1005 N.MI.
10000	5	9	12	10	10	2	0	-11	-10	-12	-10	-11	-19	-21	11 10
18000	11	14	20	15	15	5	2	-15	-16	-21	-17	-18	-28	-30	12 12
LISBKA															17 15
5000	2	1	3	4	2	-3	-5	-4	-2	-4	-6	-5	-11	-12	1612 N.MI.
10000	2	3	7	7	5	-2	-3	-5	-5	-8	-9	-7	-14	-16	10 9
18000	1	4	11	9	6	-3	-6	-9	-5	-14	-14	-12	-22	-25	12 11
LISBKA															17 15
5000	4	2	3	2	2	-5	-6	-4	-3	-3	-3	-4	-12	-13	271 N.MI.
10000	7	4	10	10	8	C	-2	-9	-9	-13	-11	-13	-19	-21	12 12
18000	6	12	19	13	13	1	-1	-13	-14	-19	-16	-16	-28	-30	15 14
LISBKA															20 18
5000	5	4	4	4	4	-2	-3	-6	-4	-4	-4	-4	-11	-13	924 N.MI.
10000	12	10	11	11	11	3	1	-13	-11	-11	-11	-12	-19	-21	10 10
18000	17	17	19	16	17	8	5	-20	-19	-23	-17	-23	-29	-31	12 12
															17 15

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCAPE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWIND										STANDARD DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	0000	A75	A65	JAN	APR	JUL	OCT	0000	A75	A65	
LISBON															452 N.M.I.
SUCO	3	2	3	2	2	-5	-7	-4	-2	-3	-3	-4	-11	-13	12 12
10000	7	8	10	10	6	0	-1	-9	-9	-11	-11	-11	-19	-21	15 14
18000	6	12	19	13	13	2	0	-13	-14	-20	-16	-17	-27	-30	19 17 13 16
LORINE AFE															
SUCO	-5	-6	-6	-7	-7	-16	-18	6	4	6	6	5	-2	-4	14 14
10000	-20	-13	-10	-13	-14	-24	-27	13	5	8	10	9	0	-2	17 16
18000	-37	-21	-16	-26	-24	-35	-43	23	11	11	18	15	1	-1	23 22 14 21
LUMINE AFE															
SUCO	6	2	5	7	5	-2	-4	-8	-3	-6	-8	-7	-14	-16	12 11
10000	11	4	7	9	7	-1	-3	-14	-6	-8	-11	-10	-19	-21	14 13
18000	19	10	10	15	13	1	-1	-25	-14	-14	-21	-19	-31	-34	18 18 14 13
LORINE AFE															
SUCO	-11	-7	-7	-8	-5	-17	-19	8	5	7	7	6	-1	-3	14 14
10000	-22	-14	-11	-15	-16	-26	-28	17	11	13	12	12	2	0	16 16
18000	-40	-23	-18	-29	-27	-42	-46	29	15	14	21	19	5	2	22 22 14 21
LORINE AFE															
SUCO	-11	-8	-6	-6	-6	-14	-16	10	6	5	6	6	0	0	10 10
10000	-22	-15	-9	-11	-14	-22	-24	18	12	8	9	11	4	2	11 11
18000	-40	-24	-12	-24	-24	-37	-41	29	16	9	18	16	6	4	16 16 9 15
LORINE AFE															
SUCO	-8	-6	-4	-4	-6	-12	-14	6	4	4	3	4	-1	-3	10 10
10000	-15	-12	-6	-8	-10	-20	-20	9	5	5	6	7	0	-1	12 12
18000	-31	-19	-10	-20	-15	-31	-34	16	5	7	13	10	1	0	17 16 9 15
LORINE AFE															
SUCO	-3	-4	-4	-2	-4	-9	-10	1	3	3	2	2	-2	-4	9 8
10000	-2	-8	-4	-4	-5	-11	-13	-2	5	3	3	2	-4	-5	10 10
18000	-10	-7	-4	-10	-6	-16	-18	-2	-1	2	5	0	-7	-9	14 13 8 12
LORINE AFE															
SUCO	-2	-4	-4	-2	-4	-5	-10	0	2	4	1	2	-3	-4	9 8
10000	0	-6	-3	-3	-4	-10	-11	-4	2	2	1	3	-6	-7	10 10
18000	-5	-3	-3	-7	-5	-13	-15	-7	-5	0	2	-2	-10	-13	14 13 8 12
LORINE AFE															
SUCO	-2	-4	-4	-2	-4	-5	-10	0	2	4	1	2	-3	-4	9 8
10000	0	-6	-3	-3	-4	-10	-11	-4	2	2	1	3	-6	-7	10 10
18000	-5	-3	-3	-7	-5	-13	-15	-7	-5	0	2	-2	-10	-13	14 13 8 12
LORINE AFE															
SUCO	-2	-4	-4	-2	-4	-5	-10	0	2	4	1	2	-3	-4	9 8
10000	-1	-7	-3	-4	-4	-10	-12	-3	4	2	2	1	-5	-6	10 10
18000	-6	-5	-4	-9	-7	-15	-17	-5	-3	1	3	-1	-9	-11	14 13 8 12

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--LEASTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANGARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION			
	DIRECT						RETURN						JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	0000	0000	JAN	APR	JUL	OCT	0000	0000	0000	0000	0000	0000
LORING AFB	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO
5000	-9	-6	-5	-6	-7	-14	-6	-5	5	5	5	5	-1	-3	12	945 N.M.I.
10000	-20	-14	-9	-11	-13	-22	-25	14	10	7	9	9	1	0	14	10
18000	-38	-22	-14	-25	-24	-38	-41	24	12	10	17	14	3	1	19	12
LORING AFB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	2	1	2	4	2	-4	-6	-4	-2	-3	-5	-4	-11	-12	10	1317 N.M.I.
10000	6	2	3	4	3	-4	-6	-9	-3	-4	-6	-6	-14	-16	12	9
18000	11	6	4	7	6	-3	-6	-17	-10	-8	-14	-13	-23	-26	17	10
LORING AFB	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO
5000	-1	0	0	1	0	-5	-6	0	-1	-1	-2	-1	-7	-8	8	1775 N.M.I.
10000	0	0	0	0	0	-6	-8	-3	-1	-2	-2	-3	-9	-10	10	7
18000	3	0	0	0	0	-8	-10	-9	-4	-2	-5	-5	-14	-16	13	8
LORING AFB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-8	-6	-7	-7	-8	-16	-19	5	4	6	6	5	-3	-5	15	347 N.M.I.
10000	-15	-11	-10	-14	-14	-24	-27	12	8	8	10	9	0	-3	17	11
18000	-36	-20	-17	-27	-25	-40	-44	23	11	11	18	15	1	-2	24	12
LUQA, MALTA	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	10	7	3	4	5	0	0	-10	-7	-3	-4	-6	-12	-13	8	1155 N.M.I.
10000	12	13	8	6	5	3	1	-13	-14	-9	-7	-11	-18	-19	10	6
18000	21	22	9	11	14	6	4	-26	-25	-13	-13	-18	-28	-31	16	7
LUQA, MALTA	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-9	-5	-7	-5	-7	-14	-15	8	4	7	4	5	-1	-2	12	1156 N.M.I.
10000	-11	-8	-9	-7	-5	-17	-19	5	6	8	5	7	0	-2	13	8
18000	-19	-11	-11	-12	-13	-24	-27	14	6	8	8	8	-1	-4	18	9
LUQA, MALTA	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	2	0	-2	2	0	-6	-7	-4	0	1	-3	-2	-8	-10	10	1519 N.M.I.
10000	5	2	1	4	2	-4	-5	-8	-4	-2	-6	-5	-13	-15	11	8
18000	2	4	6	5	4	-4	-7	-7	-8	-13	-9	-9	-18	-20	15	9
LUQA, MALTA	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-7	-4	-7	-3	-6	-14	-15	5	4	8	2	4	-3	-5	14	301 N.M.I.
10000	-4	-5	-10	-2	-6	-15	-17	1	3	8	1	3	-5	-8	15	9
18000	-11	-5	-6	-4	-7	-18	-21	5	0	1	0	1	-10	-12	20	11
LUQA, MALTA	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	4	1	0	3	2	-2	-3	-4	-1	0	-3	-3	-7	-8	7	1497 N.M.I.
10000	-5	-6	6	1	-1	-8	-9	4	5	-7	-2	0	-7	-8	8	6
18000	-14	-16	-2	-7	-5	-17	-20	7	12	1	6	6	0	-2	12	7

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

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MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*												STANDARD DEVIATION					
	DIRECT						RETURN											
	JAN	APR	JUL	OCT	**A50	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85	JAN	APR	JUL	OCT
LUQA, MALTA	TC	TC			NICCSIA													
5000	8	6	1	4	4	-1	-3	-9	-6	-1	-4	-5	-11	-13	11	9	7	8
10000	15	15	10	11	12	5	3	-16	-16	-11	-11	-14	-21	-23	12	11	9	11
18000	26	26	17	19	21	12	9	-29	-28	-18	-20	-24	-34	-37	17	15	11	13
LUQA, MALTA	TC	TC			OFAN													
5000	-6	-5	-2	-4	-5	-11	-13	5	5	2	4	3	-2	-4	10	11	7	10
10000	-15	-14	-9	-11	-13	-21	-23	14	13	8	10	11	2	0	13	13	10	12
18000	-23	-23	-19	-17	-21	-30	-33	20	22	19	16	19	9	7	17	15	11	13
LUQA, MALTA	TC	TC			PCRT LYALTEY													
5000	-5	-5	-2	-4	-4	-10	-12	4	5	2	4	3	-2	-3	9	10	6	9
10000	-14	-13	-8	-11	-12	-15	-21	12	12	7	10	10	2	1	12	11	9	11
18000	-23	-23	-19	-17	-21	-25	-32	19	21	18	16	18	9	7	16	13	10	12
LUQA, MALTA	TC	TC			PFESTWICK													
5000	-9	-5	-7	-5	-7	-14	-15	8	4	7	4	5	0	-2	11	10	8	10
10000	-12	-7	-9	-7	-5	-17	-19	10	6	8	6	7	0	-1	12	11	9	11
18000	-20	-11	-11	-13	-14	-24	-27	15	7	8	8	9	0	-3	17	15	12	15
LUQA, MALTA	TC	TC			RPEIN PAIA													
5000	-8	-5	-7	-4	-6	-13	-15	6	4	7	3	5	-2	-3	12	10	9	10
10000	-5	-7	-9	-5	-8	-16	-18	6	5	7	3	5	-3	-5	14	13	10	12
18000	-15	-8	-8	-8	-10	-21	-23	10	3	4	4	5	-5	-8	19	16	12	16
LUQA, MALTA	TC	TC			RCME													
5000	-8	-5	-8	-3	-7	-14	-16	7	5	8	3	5	-1	-3	13	12	9	11
10000	-7	-7	-11	-4	-8	-17	-19	5	5	10	3	6	-3	-5	15	14	11	14
18000	-15	-8	-9	-8	-10	-21	-24	10	3	5	4	5	-5	-8	20	17	13	16
LUQA, MALTA	TC	TC			STOCKHOLM													
5000	-3	-3	-4	-1	-3	-10	-11	1	2	3	0	1	-4	-6	11	9	8	9
10000	-2	-3	-3	0	-3	-10	-12	3	1	1	-1	0	-7	-9	12	11	9	11
18000	-5	-3	0	-2	-4	-14	-17	3	-1	-4	-3	-2	-12	-14	17	15	12	15
LUQA, MALTA	TC	TC			TEHRAN													
5000	6	6	2	4	4	0	-1	-7	-6	-3	-4	-5	-10	-11	8	7	5	6
10000	15	14	9	10	11	6	4	-16	-14	-10	-11	-13	-19	-20	9	9	7	8
18000	25	24	16	18	20	12	10	-28	-26	-17	-20	-23	-31	-33	13	12	9	10
LUQA, MALTA	TC	TC			TEL AVIV													
5000	5	7	2	4	5	0	-1	-9	-7	-3	-4	-6	-12	-13	10	8	6	8
10000	15	15	11	11	12	6	4	-16	-16	-11	-11	-14	-21	-23	11	11	8	10
18000	27	27	16	18	21	12	10	-30	-25	-17	-19	-23	-34	-36	17	14	10	12

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MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*														STANDARD DEVIATION			
	DIRECT							RETURN										
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85	JAN	APR	JUL	OCT
LUQA, MALTA																		
	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-8	-5	-5	-4	-6	-12	-14	7	4	5	4	5	-1	-3	10	10	8	10
10000	-14	-12	-13	-11	-12	-21	-23	13	11	12	10	11	3	1	13	12	9	12
18000	-21	-19	-20	-17	-20	-25	-31	18	17	19	15	17	7	5	17	15	11	13
LUQA, MALTA																		
	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-10	-6	-3	-5	-6	-14	-16	9	6	3	5	5	-2	-3	13	12	9	11
10000	-15	-12	-11	-11	-14	-23	-25	14	14	12	10	12	3	1	15	14	11	14
18000	-25	-23	-19	-17	-21	-32	-35	22	21	19	16	19	8	5	20	17	13	15
LUQA, MALTA																		
	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-9	-5	-5	-4	-6	-13	-15	8	5	5	4	5	-1	-2	11	11	8	10
10000	-14	-12	-14	-10	-12	-21	-23	13	11	13	9	11	3	1	13	13	10	12
18000	-21	-18	-19	-16	-15	-25	-31	18	15	18	15	16	6	4	18	15	11	14
LUXCR																		
	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	0	0	-5	-1	-2	-7	-8	0	0	5	0	0	-4	-5	8	7	6	7
10000	0	0	0	0	0	-5	-6	-2	-2	0	-2	-2	-7	-9	9	9	7	8
18000	-3	-2	-3	0	-3	-10	-12	-4	-2	0	-3	-2	-10	-12	13	12	9	11
LUXCR																		
	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	2	-1	3	2	-1	-2	-7	-2	2	-3	-3	-7	-8	4	5	5	5
10000	1	3	0	0	0	-3	-4	-2	-4	0	0	-2	-6	-7	6	6	5	5
18000	-5	2	4	-3	0	-6	-7	3	-2	-4	3	0	-5	-7	8	7	6	6
LUXCR																		
	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-9	-7	-6	-5	-7	-12	-14	8	7	6	5	6	1	0	9	8	6	7
10000	-11	-12	-10	-7	-10	-17	-18	10	11	10	6	9	2	1	10	10	8	9
18000	-22	-22	-14	-12	-17	-26	-29	16	17	13	10	13	5	3	15	13	9	11
LUXCR																		
	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	1	1	-1	4	1	-2	-3	-1	-1	1	-4	-2	-5	-6	5	5	5	5
10000	-6	-5	8	6	0	-6	-8	6	5	-9	-6	-1	-8	-10	6	6	6	6
18000	-17	-10	8	-2	-5	-14	-16	15	8	-3	1	3	-4	-6	10	8	6	6
LUXCR																		
	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-2	-3	-8	-4	-5	-10	-12	1	3	8	4	4	-1	-2	9	8	6	8
10000	-1	-2	-3	2	-1	-8	-10	-1	0	3	-3	0	-7	-9	11	11	8	10
18000	-2	-6	-7	2	-4	-13	-16	-7	-1	6	-5	-2	-12	-15	18	15	11	12
LUXCR																		
	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-9	-6	-1	-3	-5	-10	-11	9	6	1	3	4	0	-1	7	7	5	6
10000	-14	-14	-6	-8	-11	-17	-18	14	13	6	7	9	4	2	8	8	7	8
18000	-28	-25	-9	-14	-15	-28	-30	24	23	8	13	16	8	6	13	10	8	9

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EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS*															STANDARD DEVIATION			
	DIRECT					RETURN													
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**ASO	A75	A85	JAN	APR	JUL	OCT	
LUXCR																			
5000		TC			RHEIN MAIN													1890 N.MI.	
10000	-7	-6	-6	-5	-7	-12	-13	7	6	8	5	6	1	0	9	7	6	7	
18000	-10	-10	-10	-6	-10	-15	-17	8	8	9	5	7	1	0	9	9	7	9	
	-15	-16	-14	-12	-16	-23	-25	12	12	12	8	11	3	1	14	12	9	11	
LUXCR																			
5000		TC			RCME													1441 N.MI.	
10000	-9	-7	-6	-5	-7	-12	-13	8	7	6	5	6	1	0	9	7	6	7	
18000	-11	-12	-10	-7	-11	-17	-18	10	11	10	6	9	3	1	10	9	7	9	
	-22	-21	-14	-13	-17	-26	-28	16	17	13	10	13	6	4	15	12	9	10	
LUXCR																			
5000		TC			TEMERAN													1153 N.MI.	
10000	4	5	0	0	2	-2	-3	-4	-5	0	0	-3	-7	-9	7	7	6	6	
18000	14	11	2	7	8	1	3	-15	-12	-2	-7	-9	-16	-18	9	9	7	8	
	23	14	6	17	15	7	4	-28	-23	-8	-18	-19	-29	-31	15	12	9	10	
LUXCR																			
5000		TC			TEL AVIV													455 N.MI.	
10000	-1	-2	-6	-4	-4	-9	-11	0	2	6	4	3	-2	-3	9	8	7	8	
18000	1	0	-2	4	0	-6	-8	-4	-2	2	-5	-2	-10	-12	11	11	9	10	
	3	0	-4	6	0	-9	-11	-12	-6	4	-9	-5	-16	-19	19	15	11	12	
LUXCR																			
5000		TC			TUNIS													1364 N.MI.	
10000	-10	-7	-3	-4	-6	-11	-13	10	7	3	4	5	0	0	8	7	6	7	
18000	-13	-14	-9	-7	-11	-17	-19	12	13	9	6	9	3	2	10	9	7	9	
	-26	-25	-11	-14	-18	-28	-31	22	22	10	12	15	7	5	15	12	9	10	
LUXCR																			
5000		TC			ZAMEKAN													1530 N.MI.	
10000	6	7	4	1	4	0	0	-6	-7	-4	-1	-5	-9	-10	6	6	6	5	
18000	16	14	2	4	8	2	0	-17	-14	-2	-4	-9	-17	-18	7	8	6	7	
	30	25	4	13	16	7	5	-33	-27	-4	-14	-19	-31	-33	13	10	7	8	
LUXCR																			
5000		TC			ZARAGOZA													1919 N.MI.	
10000	-10	-6	-4	-4	-6	-11	-12	9	6	4	4	5	1	0	8	7	5	7	
18000	-13	-13	-11	-8	-12	-17	-19	12	12	10	7	13	4	3	9	9	7	8	
	-24	-22	-14	-15	-19	-26	-28	19	19	13	13	15	8	7	13	11	8	9	
MANAGLA																			
5000		TC			MCGUIRE AFB													1782 N.MI.	
10000	1	3	1	0	1	-3	-4	-2	-3	-1	0	-2	-6	-8	7	7	5	7	
18000	3	4	1	2	2	-2	-3	-6	-6	-2	-3	-4	-9	-11	8	8	5	7	
	4	2	2	5	3	-3	-4	-13	-9	-3	-8	-8	-15	-17	11	11	6	13	
MANAGLA																			
5000		TC			MEDELLIN													725 N.MI.	
10000	-1	-8	-2	0	-3	-7	-8	1	8	2	0	2	-1	-1	6	5	4	3	
18000	-6	-6	-14	-6	-8	-12	-14	6	7	14	7	8	4	3	5	5	6	5	
	-5	-4	-12	-6	-7	-13	-14	5	5	12	7	7	1	0	9	8	7	7	

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MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION			
	DIRECT						RETURN						JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85		
MANAGLA																
5000	1	3	1	0	1	-3	-4	-2	-3	-1	0	-2	-6	-7	7	1755 N.MI.
10000	3	3	1	2	2	-2	-3	-6	-5	-2	-3	-4	-9	-10	8	7 5 6
18000	3	1	2	5	2	-3	-5	-12	-7	-2	-8	-7	-14	-16	11	8 5 7
																11 11 6 10
MANAGLA																
5000	3	5	5	3	3	-1	-2	-3	-5	-4	0	-4	-8	-10	8	1092 N.MI.
10000	2	2	4	2	2	-1	-3	-2	-2	-5	-1	-3	-8	-9	8	8 5 7
18000	0	-2	2	1	0	-5	-7	-4	0	-2	-2	-2	-8	-10	11	8 5 6
																11 10 6 9
MANAGLA																
5000	-11	-9	-9	-7	-5	-12	-13	11	10	9	7	9	6	6	4	1883 N.MI.
10000	-5	-8	-15	-8	-10	-14	-15	9	9	16	9	10	7	6	4	4 3 3
18000	-4	-4	-12	-7	-7	-12	-13	4	4	12	7	6	2	1	6	4 4 4
																6 6 5 5
MANAGLA																
5000	-2	2	0	-1	0	-5	-6	1	-2	0	1	0	-4	-5	7	1016 N.MI.
10000	1	2	0	2	1	-3	-4	-1	-2	0	-2	-2	-6	-7	8	7 5 6
18000	0	0	0	3	0	-5	-6	-1	-2	0	-3	-2	-8	-9	11	7 6 6
																11 10 6 8
MANAGLA																
5000	-11	-3	-8	-8	-6	-12	-13	11	3	9	9	8	4	3	6	891 N.MI.
10000	-6	-4	-12	-4	-7	-12	-13	6	4	12	5	6	1	0	7	6 4 5
18000	-3	-1	-7	-3	-4	-10	-11	3	1	7	3	3	-1	-3	9	7 6 6
																9 9 6 7
MANAGLA																
5000	-11	-4	-10	-9	-5	-13	-14	11	4	10	9	8	4	3	6	1169 N.MI.
10000	-7	-4	-13	-5	-8	-12	-14	7	4	12	5	6	2	1	6	5 4 5
18000	-3	-1	-8	-4	-5	-10	-11	2	0	8	4	3	-1	-3	9	6 6 6
																9 8 6 7
MANAGLA																
5000	-3	-9	-1	3	-2	-6	-9	2	5	1	-2	1	-2	-4	7	184 N.MI.
10000	-3	-4	-10	-5	-6	-11	-12	2	4	9	5	5	0	0	7	6 5 5
18000	-4	-3	-10	-5	-6	-13	-14	4	3	11	5	6	0	-2	11	6 6 6
																11 10 7 9
MANAGLA																
5000	7	9	5	0	5	0	-1	-7	-9	-5	1	-5	-11	-12	8	190 N.MI.
10000	6	5	12	6	7	2	1	-6	-5	-12	-6	-8	-13	-14	8	7 5 7
18000	4	1	12	6	6	-1	-3	-4	-1	-11	-6	-7	-13	-15	12	7 6 6
																12 10 7 9
MANAGLA																
5000	-11	-3	-9	-8	-6	-12	-13	11	3	10	9	8	4	3	6	1018 N.MI.
10000	-6	-4	-12	-5	-7	-12	-13	7	4	12	5	6	2	1	7	5 4 5
18000	-3	-1	-7	-4	-5	-10	-11	2	1	8	4	4	-1	-3	9	6 6 6
																9 9 6 7

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
PLUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

FLIGHT IN FEET	EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES										STANDARD DEVIATION			
	DIRECT					RETURN								
	JAN	APR	JUL	OCT	WASG	ATS	ABS	JAN	APR	JUL	OCT	WASG	ATS	ABS
MANAGLA														
5000	C	3	1	0	SPAW AFE	C	-4	-1	-3	-1	0	-2	-6	-7
10000	2	3	1	2	1	-2	-3	-9	-4	-1	-2	-3	-8	-9
15000	2	1	1	3	1	-4	-5	-7	-5	-1	-5	-5	-11	-13
PANAGLA														
5000	1	-3	-4	-1	TALARA	-2	-6	-1	4	4	1	2	-1	-1
10000	2	-1	-5	-1	-1	-5	-6	-2	1	4	1	0	-3	-3
15000	-2	-3	-5	-3	-3	-4	-10	3	3	4	3	3	-1	-2
MANAGLA														
5000	1	3	1	0	WESTOVER AFE	1	-3	-2	-4	-2	-1	-3	-7	-8
10000	4	5	2	3	3	-1	-2	-7	-7	-2	-4	-5	-10	-12
15000	5	3	2	6	3	-2	-3	-15	-10	-3	-10	-9	-17	-19
PANAGLA														
5000	-11	-7	-8	-6	WILLENSTAC	-6	-12	11	7	6	9	7	4	3
10000	-9	-6	-15	-6	-5	-14	-15	9	7	16	7	9	5	4
15000	-4	-3	-11	-6	-7	-12	-14	4	3	11	6	6	0	0
MAURITILS ISLAND														
5000	1	8	22	5	6	3	2	-1	-8	-25	-3	-7	-19	-24
10000	5	6	5	8	5	2	1	-5	-6	-4	-8	-6	-10	-11
15000	5	0	-1	2	1	-3	-4	-5	C	1	-2	-2	-6	-7
MCGUIRE AFE														
5000	6	2	5	6	4	-1	-3	-8	-4	-6	-8	-7	-13	-15
10000	11	5	7	9	7	0	-1	-16	-8	-9	-12	-12	-19	-21
15000	20	10	10	15	13	3	0	-29	-10	-14	-23	-21	-32	-35
MCGUIRE AFE														
5000	-12	-5	-5	-5	-5	-15	-17	11	6	3	4	0	0	-1
10000	-23	-18	-7	-8	-14	-23	-25	20	13	7	7	11	3	2
15000	-42	-28	-8	-22	-24	-35	-43	34	21	7	10	16	6	4
MCGUIRE AFE														
5000	-7	-5	-3	-3	-5	-12	-13	6	4	3	2	3	-3	-4
10000	-12	-11	-4	-5	-8	-17	-19	7	0	4	4	5	-2	-3
15000	-24	-16	-6	-15	-15	-27	-31	11	6	4	10	7	-2	-5
MCGUIRE AFE														
5000	-2	-3	-3	-2	PCMT AU FRINCE	-2	-10	1	2	3	2	2	-3	-4
10000	1	-4	-3	-3	-3	-9	-13	-5	1	2	2	0	-4	-8
15000	C	0	-2	-6	-3	-10	-12	-9	-7	1	2	-2	-11	-14

*HEADINGS—COMPUTED FOR A 120-KT AIRSPEED.

**A—CENOTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN DENOTES HEADINGS.

HEIGHT IN FEET	EQUILIBRIUM HEADINGS										STANDARD DEVIATION				
	DIRECT					REFLECTION					JAN	APR	JUL	OCT	
	JAN	APR	JUL	GCT	00ASC	07S	00S	JAN	APR	JUL	OCT	00ASO	07S	00S	

*HEADLINES--COMPUTED FOR A 120-KT WINDSPEED.

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EQUIVALENT MEADINGS AND STANDARD DEVIATION IN MEASUREMENTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT MEADINGS												STANDARD DEVIATION			
	DIRECT						RETURN						JAN	APR	JUL	OCT
	JAN	APR	JUL	OCT	0000	0000	JAN	APR	JUL	OCT	0000	0000	0000	0000	0000	0000
MEDELLIA																
SOC	1	6	5	3	3	0	-2	-6	-9	-3	-4	-8	-9	6	6	1645 N.M.I.
10000	1	2	7	3	3	0	-1	-2	-9	-3	-4	-8	-9	6	6	4 5
18000	-5	-6	4	1	-1	-7	-9	2	3	-4	-1	-6	-7	9	8	5 7
MEDELLIA																
SOC	-8	-10	-9	-9	-10	-12	0	11	10	10	9	6	6	5	4	1210 N.M.I.
10000	-5	-9	-16	-10	-11	-15	10	10	10	11	11	8	7	4	5	4 4
18000	-5	-5	-13	-6	-6	-13	5	6	13	9	8	3	2	7	7	6 5
MEDELLIA																
SOC	-1	5	3	2	2	-1	0	-9	-3	-2	-3	-7	-7	6	6	1352 N.M.I.
10000	0	2	5	3	2	-1	0	-2	-9	-3	-4	-8	-9	7	6	4 5
18000	-5	-4	3	2	2	-6	3	2	3	-2	-1	-6	-7	9	9	5 7
MEDELLIA																
SOC	-4	0	-1	-1	-2	-3	0	6	1	1	1	1	-2	6	5	766 N.M.I.
10000	-4	0	-1	0	-2	-6	0	6	3	0	0	-3	-4	6	6	4 5
18000	-5	-2	-1	-1	-3	-8	0	2	1	1	1	-3	-4	9	9	6 7
MEDELLIA																
SOC	-7	-2	-9	-4	-5	-10	7	3	0	0	4	1	0	5	5	800 N.M.I.
10000	-6	-2	-5	-4	-9	-13	6	2	0	2	3	0	-1	6	6	4 5
18000	-5	-2	-5	-3	-4	-11	5	2	0	3	3	-1	-3	9	9	6 7
MEDELLIA																
SOC	0	0	2	1	2	-1	-9	-7	-2	0	-2	-6	-7	6	5	552 N.M.I.
10000	7	7	15	7	6	4	-7	-6	-15	-9	-9	-13	-14	5	5	4 3
18000	6	5	13	7	7	2	-6	-5	-12	-7	-8	-14	-15	9	9	6 5
MEDELLIA																
SOC	2	9	3	3	3	-1	-3	-6	-2	0	-3	-7	-8	6	5	914 N.M.I.
10000	5	0	14	7	6	0	-9	-6	-14	-9	-8	-13	-14	5	5	4 4
18000	5	4	12	6	7	1	-5	-4	-12	-9	-8	-13	-14	9	8	5 7
MEDELLIA																
SOC	-2	-3	-2	-2	-3	-9	3	1	3	3	3	0	0	3	3	1599 N.M.I.
10000	-2	-4	-1	-2	-3	-9	2	0	3	2	2	-1	-2	4	4	3 4
18000	-1	6	-2	-3	-2	-9	1	6	1	3	1	-3	-4	7	6	5 5
MEDELLIA																
SOC	-6	-2	-3	-3	-4	-7	0	2	2	3	3	0	-1	6	5	807 N.M.I.
10000	-5	-1	-3	-1	-3	-7	5	1	2	1	2	-2	-3	6	6	4 5
18000	-5	-2	-3	-2	-3	-13	5	1	3	2	2	-2	-3	9	9	6 7

MEADINGS--COMPUTED FOR A 120-AT AIRCRAFT.
 000--DENOTES ANNUAL EQUIVALENT MEADINGS FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN DENOTES MEADINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

WEIGHT IN POUNDS		EQUIVALENT HEADINGS												STANDARD DEVIATION					
		JAN	APR	JUL	OCT	00ASZ	A75	A85	JAN	APR	JUL	OCT	00ASO	A75	A85	JAN	APR	JUL	OCT
PILCEN-ALL		1	0	0	0	0	-7	-8	-2	C	0	0	0	-1	-7	-9	11	10	1126 N.M.I.
5000		0	-3	-4	-4	-4	-11	-13	-2	1	3	2	2	1	-6	-8	13	12	8 10
10000		C	-4	-5	-5	-5	-16	-14	-7	0	5	1	1	0	-10	-13	17	16	9 10 12 15
PILCEN-ALL		-11	-4	-6	-7	-7	-10	-20	9	3	5	4	4	5	-4	-7	17	15	260 N.M.I.
5000		-14	-7	-8	-10	-10	-21	-24	11	5	6	7	7	7	-4	-6	19	17	12 16
10000		-23	-14	-12	-17	-17	-33	-37	18	9	8	10	10	10	-4	-8	27	24	14 16 19 24
PILCEN-ALL		9	5	6	6	6	7	-4	-11	-5	-8	-9	-9	-9	-18	-20	16	14	335 N.M.I.
5000		12	7	10	11	11	10	-2	-14	-8	-11	-13	-12	-22	-25		18	16	11 14
10000		15	10	13	16	14	C	-4	-24	-14	-16	-20	-19	-34	-38		25	23	12 14 17 23
PILCEN-ALL		7	4	7	5	5	-1	-3	-9	-5	-8	-6	-7	-15	-17		13	11	795 N.M.I.
5000		10	6	7	8	7	-1	-3	-12	-7	-8	-8	-9	-18	-20		15	14	10 11 13
10000		15	7	8	9	8	-2	-5	-20	-11	-12	-14	-14	-26	-30		20	18	11 14 16 18
PILCEN-ALL		-4	-1	5	0	-1	-6	-10	1	C	0	-1	0	-7	-8		11	10	1714 N.M.I.
5000		-8	-7	-3	-4	-6	-14	-16	3	4	2	1	2	-5	-6		13	12	8 10
10000		-17	-15	-8	-12	-12	-24	-27	9	10	5	6	7	-2	-5		17	16	9 11 12 16
PILCEN-ALL		7	4	7	9	6	-1	-3	-9	-5	-7	-10	-8	-17	-19		14	12	719 N.M.I.
5000		10	6	9	10	7	-1	-3	-9	-8	-10	-12	-10	-20	-22		16	14	10 13
10000		15	7	14	13	10	-3	-6	-17	-13	-10	-19	-17	-30	-34		23	21	11 14 16 21
PILCEN-ALL		6	3	9	6	6	1	0	-8	-6	-9	-6	-8	-13	-14		9	8	1928 N.M.I.
5000		10	8	13	8	5	3	1	-12	-10	-11	-9	-11	-17	-19		10	10	7 7
10000		15	12	15	13	14	5	3	-21	-16	-17	-16	-18	-26	-28		14	13	7 9 10 12
PILCEN-ALL		1	0	0	-1	-1	-8	-10	-3	-1	-1	0	-2	-10	-12		13	12	738 N.M.I.
5000		3	-2	-4	-4	-3	-12	-14	-3	C	3	2	0	-8	-10		15	14	10 13
10000		1	-3	-8	-6	-5	-16	-19	-8	-1	4	1	0	-13	-16		20	18	10 12 14 18
PILCEN-ALL		3	2	4	6	3	-3	-5	-5	-3	-4	-8	-5	-13	-15		12	10	1157 N.M.I.
5000		3	3	5	6	4	-3	-5	-6	-5	-6	-8	-7	-15	-17		13	12	9 12
10000		2	0	7	7	4	-7	-10	-11	-6	-10	-13	-11	-22	-25		19	18	10 12 14 18

WEIGHTS--COMPUTED FOR A 120-KT AIRSPEED.
000--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

WEIGHT IN FEET	EQUIVALENT HEADINGS												STANDARD DEVIATION					
	DIRECT					RETURN							JAN APR JUL OCT					
	JAN	APR	JUL	OCT	00A50	075	A85	JAN	APR	JUL	OCT	00A50	075	A85	JAN	APR	JUL	OCT
MILBURNALL	7	4	0	3	5	-2	-3	-9	-4	-6	-4	-6	-13	-15	12	11	9	10
5000	8	4	0	4	5	-2	-4	-11	-6	-7	-6	-8	-16	-18	13	12	10	11
10000	12	4	4	5	5	-4	-7	-17	-9	-8	-10	-11	-22	-25	18	16	12	16
PILBURNALL	4	1	2	0	1	-6	-8	-5	-2	-3	-1	-3	-12	-14	14	13	10	13
5000	3	0	-2	-1	-1	-6	-11	-6	-1	1	0	-1	-10	-13	15	14	10	12
10000	5	3	-4	-3	-1	-14	-17	-12	-3	3	-2	-4	-17	-21	21	19	15	19
POSCEN	3	1	0	0	3	-13	-12	4	0	3	3	1	-5	-7	11	10	9	10
5000	4	-4	-4	-7	-6	-14	-16	5	2	3	5	3	-4	-6	13	12	10	12
10000	8	-8	-12	-11	-10	-21	-23	3	4	9	6	5	-4	-7	17	16	13	16
MUSCEN	2	-1	4	-1	0	-7	-8	1	0	-4	0	-1	-7	-9	11	9	8	9
5000	3	-3	-1	-2	-3	-10	-12	0	1	0	0	0	-7	-8	12	11	9	11
10000	2	-3	-2	-2	-3	-13	-15	-3	-1	-1	-2	-2	-12	-14	16	15	12	15
POSCEN	4	-2	-2	-4	-3	-9	-10	2	1	1	3	1	-3	-5	9	8	7	8
5000	8	-6	-7	-8	-8	-14	-16	5	4	6	7	5	-1	-2	11	10	8	10
10000	9	-10	-15	-13	-13	-21	-23	4	7	13	9	8	0	-2	14	13	10	13
POSCEN	10	-6	-7	-10	-9	-16	-17	8	5	7	9	7	0	-1	12	10	8	11
5000	12	-6	-9	-13	-11	-19	-21	10	8	8	12	9	1	0	13	12	10	12
10000	21	-16	-16	-20	-19	-30	-32	15	12	13	16	13	3	0	18	17	13	17
PCSCEA	8	-5	-6	-9	-7	-15	-17	6	4	6	8	6	-1	-3	12	11	9	11
5000	10	-7	-8	-12	-10	-18	-20	8	5	7	10	7	0	-2	14	13	10	12
10000	15	-12	-16	-18	-16	-27	-30	9	8	14	13	11	0	-3	19	18	14	18
POSCEN	3	-1	-1	-3	-3	-10	-12	4	0	0	4	1	-4	-6	11	10	9	10
5000	6	-4	-5	-8	-7	-15	-17	6	2	4	6	4	-3	-5	13	12	10	12
10000	6	-8	-13	-12	-11	-22	-24	3	4	10	8	6	-4	-6	17	16	13	16
POSCEN	7	-6	-5	-9	-7	-16	-18	6	5	5	8	5	-2	-4	13	13	10	13
5000	10	-9	-6	-11	-9	-19	-21	9	6	6	10	8	-1	-3	15	15	12	14
10000	17	-15	-13	-17	-16	-28	-32	13	11	13	13	11	-1	-4	20	20	16	20

WEAVERS--COMPUTED FOR A 120-KT AIRSPEED.

00A--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN DENOTES HEADINGS.

EQUIVALENT MEASURES ARE STANBARD DEVIATION IN AVIS FOR GREAT CIRCLE AIR ROUTES

WEIGHT IN FEET	STANDARD DEVIATION											
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC
MSCCB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	-2	4	1	1	1	0	1	-1	-1	-1	-1
10000	2	0	3	4	4	4	-4	-1	-3	-3	-3	-3
15000	6	2	0	5	5	5	-12	-6	-2	-2	-2	-2
MSCCB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-1	-1	3	0	0	0	0	0	-3	-3	-3	-3
10000	-2	-2	-1	-2	-2	-2	0	0	0	0	0	0
15000	-2	-2	3	-2	-2	-2	-4	-3	-2	-2	-2	-2
MSCCB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-2	-4	-6	-5	-5	3	2	0	0	0	0
10000	-8	-6	-4	-10	-5	-5	6	0	0	0	0	0
15000	-11	-11	-10	-16	-14	-14	5	7	10	12	12	12
MSCCB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-1	-3	0	-2	-2	-2	0	1	0	0	0	0
10000	-5	-6	-2	-7	-5	-5	3	0	1	1	1	1
15000	-12	-13	-3	-9	-5	-5	7	0	0	0	0	0
MSCCB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-4	-1	0	-3	-2	-2	2	6	-1	-1	-1	-1
10000	-8	-4	-4	-7	-6	-6	3	2	2	2	2	2
15000	-E	-9	-13	-11	-11	-11	2	5	0	0	0	0
MSCCB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	6	0	4	2	1	1	-1	6	-0	-0	-0	-0
10000	2	1	4	5	3	3	-4	-2	-0	-0	-0	-0
15000	8	4	9	7	5	5	-10	-5	-0	-0	-0	-0
MSCCB	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	-5	-2	-4	-6	-5	-5	3	1	0	0	0	0
10000	-E	-6	-8	-10	-5	-5	6	4	7	0	0	0
15000	-11	-10	-10	-16	-14	-14	5	6	10	11	11	11
NAPLES	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	4	1	1	2	2	2	-0	-1	-1	-1	-1	-1
10000	-4	-5	5	0	-1	-1	3	1	-0	-0	-0	-0
15000	-10	-14	-4	-6	-6	-6	2	5	2	3	3	3
NAPLES	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
5000	7	6	5	5	5	5	-0	-6	-0	-0	-0	-0
10000	13	12	12	9	11	11	-10	-10	-12	-10	-10	-10
15000	20	21	20	16	15	15	-20	-23	-21	-10	-10	-10

MEASURES--COMPUTED FOR A 120-KT AIRSPEED.
 **--GIVES ANNUAL EQUIVALENT MEASURES FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN DENOTES MEASURES.

EQUIVALENT HEADINGS AND STANCARC DEVIATION IN DEGREES FOR GREAT CIRCLE AIR ROUTES

WEIGHT IN FEET	EQUIVALENT HEADINGS												STANCARC DEVIATION			
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT
NAPLES																
5000	-3	-3	0	-3	-3	-3	1	2	0	3	1	-3	11	11	767 N.MI.	
10000	-11	-10	-9	-9	-10	-10	9	9	0	0	0	0	13	13	10	10
15000	-15	-10	-20	-15	-16	-27	10	10	10	13	15	4	10	15	11	14
NAPLES																
5000	-3	-3	-1	-3	-3	-5	2	3	1	3	2	-3	10	10	1063 N.MI.	
10000	-11	-10	-9	-9	-10	-17	9	9	0	0	0	1	12	11	7	9
15000	-15	-10	-20	-15	-16	-27	11	10	10	10	15	0	16	14	10	13
NAPLES																
5000	-5	-5	-8	-6	-6	-13	0	0	7	9	0	-1	12	11	1150 N.MI.	
10000	-13	-8	-9	-9	-10	-18	10	0	7	7	7	0	14	13	9	11
15000	-21	-12	-13	-15	-15	-27	16	7	0	10	10	3	19	17	13	17
NAPLES																
5000	-7	-5	-8	-5	-7	-13	0	3	7	0	3	-2	14	11	909 N.MI.	
10000	-10	-7	-8	-5	-6	-17	0	3	7	0	0	-3	15	14	10	11
15000	-16	-8	-9	-10	-11	-23	11	4	9	9	0	-6	21	19	14	14
NAPLES																
5000	-2	-3	-2	-1	-3	-5	0	2	1	1	0	-6	12	10	1121 N.MI.	
10000	-2	-3	-1	0	-2	-10	0	1	3	-1	3	-10	13	12	9	10
15000	-9	-3	0	-1	-3	-15	2	-1	-3	-4	-3	-14	19	17	13	17
NAPLES																
5000	3	3	3	3	3	6	-9	-9	-3	-3	-9	-11	9	7	1772 N.MI.	
10000	14	11	10	9	10	10	-13	-12	-10	-10	-12	-10	9	6	6	7
15000	20	20	17	16	16	10	-24	-22	-19	-10	-21	-20	13	12	9	11
NAPLES																
5000	0	0	0	0	0	0	-9	-9	-7	-3	-7	-13	11	0	1126 N.MI.	
10000	13	13	12	9	11	3	-14	-14	-12	-13	-13	-20	11	11	7	8
15000	21	22	19	15	15	10	-25	-25	-20	-17	-22	-31	16	14	11	12
NAPLES																
5000	-4	-3	-4	-3	-4	-12	3	3	0	3	3	-3	12	11	817 N.MI.	
10000	-13	-10	-13	-13	-12	-20	11	6	13	9	10	2	13	13	9	10
15000	-17	-17	-22	-17	-16	-29	13	14	21	15	16	3	18	16	12	15
NAPLES																
5000	0	-1	0	0	-1	-6	0	0	0	-1	0	-6	10	9	1793 N.MI.	
10000	-2	-2	0	0	-1	-10	0	0	-1	-2	-1	-6	11	10	7	9
15000	-7	-4	1	0	-2	-15	0	0	-3	-3	-3	-13	16	15	12	14

HEADINGS--COMPUTED FOR A 120-ET AIRCRAFT.

DEGREES--GROSS ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT OBLIQUITIES.
MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADINGS ARE STANDARD DEVIATION IN FEET FOR GREAT CIRCLE AIR ROUTES

HEIGHT in FEET	EQUVALENT HEADINGS ARE STANDARD DEVIATION IN FEET FOR GREAT CIRCLE AIR ROUTES												STANDARD DEVIATION											
	DIRECT						RETURN																	
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MAPLES																								
5000	TC	0	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10000	TC	-7	-3	-1	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
15000	TC	-7	-13	-14	-10	-12	-23	-26																
MAPLES																								
5000	TC	-7	-4	-3	-4	-3	-3	-3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
10000	TC	-13	-11	-13	-10	-12	-21	-23																
15000	TC	-17	-14	-22	-10	-15	-36	-33																
MAPLES																								
5000	TC	-8	-3	-6	-6	-7	-13	-15																
10000	TC	-10	-7	-9	-12	-11	-15	-21																
15000	TC	-24	-15	-14	-22	-26	-31	-33																
MAPLES																								
5000	TC	2	0	2	2	4	-3	-7																
10000	TC	11	3	0	0	7	-1	-4																
15000	TC	10	13	9	12	12	6	-2																
MAPLES																								
5000	TC	7	2	2	4	7	3	0																
10000	TC	11	7	0	7	7	0	-1																
15000	TC	17	12	9	12	12	2	0																
MAPLES																								
5000	TC	2	3	3	3	3	-3	-3																
10000	TC	5	0	3	3	3	-7	-16																
15000	TC	4	-1	-1	3	6	-14	-17																
MAPLES																								
5000	TC	3	0	1	1	1	-4	-9																
10000	TC	5	0	0	0	0	6	2																
15000	TC	10	15	0	11	11	1	-1																
MAPLES																								
5000	TC	3	1	0	1	1	-4	-9																
10000	TC	5	0	3	3	3	-4	-9																
15000	TC	6	0	0	2	1	-8	-11																
MAPLES																								
5000	TC	3	1	0	1	1	-4	-9																
10000	TC	5	0	3	3	3	-4	-9																
15000	TC	6	0	0	2	1	-8	-11																

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.
---DIRECTS ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN GRADIENT HEADINGS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

WIND- IN FEET	EQUVALENT HEADINGS IN KNOTS												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT
MASSACHUSETTS																
5000	2	2	0	2	1	-4	-6	-3	-2	0	-2	-2	-8	-9	10	1597 N.M.I.
10000	8	7	2	5	5	-1	-3	-10	-9	-3	-6	-7	-14	-16	12	11
15000	14	13	3	11	5	0	-2	-18	-17	-5	-14	-14	-24	-27	16	15
MASSACHUSETTS																
5000	-6	-3	-6	-6	-7	-14	-15	6	2	5	6	4	-2	-3	11	1500 N.M.I.
10000	-15	-7	-9	-12	-11	-19	-21	11	5	7	9	8	0	-1	12	10
15000	-20	-16	-14	-22	-20	-31	-34	20	10	10	15	13	3	0	17	16
MASSACHUSETTS																
5000	6	2	3	4	3	-2	-4	-9	-4	-4	-6	-6	-13	-15	11	1999 N.M.I.
10000	10	5	7	7	3	0	-1	-14	-7	-9	-10	-10	-18	-20	12	10
15000	13	9	10	11	10	0	-1	-22	-15	-14	-17	-17	-27	-30	17	15
NEW CLBERLAND																
5000	-12	-8	-4	-5	-7	-14	-16	10	7	4	4	5	0	-2	11	890 N.M.I.
10000	-22	-16	-7	-8	-13	-22	-24	19	14	6	7	10	3	1	12	7
15000	-31	-26	-7	-21	-22	-38	-42	31	18	5	16	15	4	1	18	10
NEW CLBERLAND																
5000	-6	-4	-2	-2	-4	-11	-12	4	2	2	1	2	-4	-6	11	741 N.M.I.
10000	-10	-8	-3	-4	-6	-14	-17	4	4	2	3	3	-4	-6	13	8
15000	-22	-12	-4	-12	-12	-24	-27	5	1	3	6	3	-6	-9	18	10
NEW CLBERLAND																
5000	-2	-2	-3	-2	-3	-8	-9	0	1	3	1	1	-3	-5	9	1319 N.M.I.
10000	2	-2	-2	-2	-1	-8	-9	-6	0	2	1	0	-7	-9	10	6
15000	1	2	-1	-4	-1	-8	-13	-12	-9	3	3	-4	-14	-16	14	7
NEW CLBERLAND																
5000	-1	-2	-3	-2	-3	-8	-9	3	1	3	2	1	-3	-5	9	1396 N.M.I.
10000	5	-1	-2	-1	0	-7	-8	-9	-1	1	0	-2	-9	-11	10	6
15000	7	7	0	-2	1	-5	-7	-17	-14	0	-1	-7	-17	-20	13	7
NEW CLBERLAND																
5000	-1	-4	-1	0	-2	-6	-7	0	3	1	0	0	-3	-4	7	1850 N.M.I.
10000	-4	-4	-2	-2	-3	-8	-9	1	2	1	2	1	-3	-4	8	5
15000	-5	-5	-2	-6	-6	-12	-14	0	0	1	4	1	-4	-6	11	10
NEW CLBERLAND																
5000	-3	-3	-1	0	-2	-7	-8	2	2	1	0	1	-3	-4	8	1717 N.M.I.
10000	-8	-7	-2	-3	-5	-10	-12	5	5	2	2	3	-1	-2	8	5
15000	-17	-11	-2	-9	-5	-18	-20	8	5	2	6	4	-1	-2	11	11

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

---DENOTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADINGS AND STANCARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	APR	OCT	JAN	APR	JUL	OCT	APR	OCT	JAN	APR	JUL	OCT
NEW CLUMBERLANC																
5000	-1	-2	-3	-2	-2	-2	-9	-9	-9	-9	-9	-9	9	8	6	8
10000	4	-2	-2	-2	-1	-7	-9	-9	-9	-9	-9	-9	10	10	7	9
18000	4	4	-1	-3	C	-7	-9	-9	-9	-9	-9	-9	14	13	7	11
NEW CLUMBERLANC																
5000	-7	-5	-2	-3	-5	-12	-14	-14	-14	-14	-14	-14	13	12	9	12
10000	-16	-12	-5	-6	-10	-20	-22	-22	-22	-22	-22	-22	15	15	10	14
18000	-33	-18	-7	-19	-18	-33	-38	-38	-38	-38	-38	-38	21	21	12	20
NEW CLUMBERLANC																
5000	3	1	3	4	2	-2	-4	-4	-4	-4	-4	-4	9	9	7	8
10000	6	2	3	5	3	-2	-4	-4	-4	-4	-4	-4	11	10	8	10
18000	11	5	4	8	6	-2	-4	-4	-4	-4	-4	-4	15	14	11	14
NEW CLUMBERLANC																
5000	-3	-3	-1	-1	-2	-7	-8	-8	-8	-8	-8	-8	8	7	5	7
10000	-7	-6	-2	-3	-5	-10	-11	-11	-11	-11	-11	-11	8	8	6	7
18000	-16	-9	-2	-9	-8	-17	-19	-19	-19	-19	-19	-19	12	11	6	10
NEW CLUMBERLANC																
5000	12	8	8	8	8	6	-1	-1	-1	-1	-1	-1	15	15	10	12
10000	24	18	13	14	16	6	3	3	3	3	3	3	17	17	12	15
18000	35	22	18	26	25	10	7	7	7	7	7	7	24	24	14	23
NEW CLUMBERLANC																
5000	-1	-2	-4	-2	-3	-7	-8	-8	-8	-8	-8	-8	7	7	5	7
10000	2	-2	-3	-2	-2	-7	-8	-8	-8	-8	-8	-8	9	8	6	7
18000	4	4	-1	-3	C	-6	-7	-7	-7	-7	-7	-7	11	11	6	10
NEW CLUMBERLANC																
5000	3	5	1	3	2	-3	-5	-5	-5	-5	-5	-5	11	11	7	10
10000	15	12	1	4	7	C	-2	-2	-2	-2	-2	-2	12	12	8	11
18000	30	26	1	13	16	3	1	1	1	1	1	1	16	16	9	14
NEW CLUMBERLANC																
5000	-4	-2	-6	-3	-4	-5	-10	-10	-10	-10	-10	-10	8	7	5	7
10000	2	2	-5	-1	-1	-6	-8	-8	-8	-8	-8	-8	9	8	6	7
18000	13	15	-3	2	5	-2	-4	-4	-4	-4	-4	-4	11	11	6	9
NEW CLUMBERLANC																
5000	-4	-2	-6	-3	-4	-5	-10	-10	-10	-10	-10	-10	8	7	5	7
10000	3	2	-5	-1	-1	-6	-8	-8	-8	-8	-8	-8	9	8	6	7
18000	14	16	-2	2	6	-2	-3	-3	-3	-3	-3	-3	11	10	6	9

*HEADINGS---COMPUTED FOR A 120-KT AIRSPEED.
**A---DEACTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS														STANDARD DEVIATION			
	DIRECT				RETURN													
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**ASO	A75	A85				
NEW ORLEANS																		
5000	-3	-5	-4	0	-4	-8	-9	2	5	4	0	2	-1	-2	7	7	5	6
10000	-2	-2	-5	-2	-3	-8	-9	1	2	5	2	2	-1	-2	7	7	5	6
18000	-2	1	-3	-2	-2	-7	-9	0	-3	3	1	0	-5	-7	10	9	6	8
NEW ORLEANS																		
5000	-4	-4	-4	-1	-4	-8	-10	3	4	4	1	3	-1	-2	8	8	5	7
10000	-3	-3	-4	-1	-3	-8	-9	3	2	4	1	2	-2	-3	8	8	6	7
18000	-7	-2	-1	-2	-3	-10	-11	3	0	1	2	1	-4	-6	11	11	6	9
NEW ORLEANS																		
5000	-4	-2	-6	-4	-5	-5	-10	4	2	6	3	3	0	-2	8	7	5	7
10000	3	2	-5	-1	-1	-6	-7	-4	-3	5	1	0	-6	-7	8	8	6	7
18000	14	15	-3	2	5	-2	-4	-17	-17	3	-4	-8	-18	-21	11	11	6	9
NEW ORLEANS																		
5000	11	8	4	4	6	0	-2	-11	-9	-4	-4	-7	-14	-16	12	11	8	10
10000	20	16	5	6	10	2	0	-22	-17	-4	-7	-12	-22	-25	13	13	8	12
18000	36	26	3	17	18	5	2	-40	-30	-3	-19	-22	-38	-42	18	18	10	16
NEW ORLEANS																		
5000	-4	-5	-5	-1	-4	-9	-10	3	5	5	1	3	-1	-2	8	8	5	7
10000	-3	-3	-5	-1	-4	-9	-10	2	2	5	2	2	-2	-3	8	8	6	7
18000	-5	0	-1	-2	-2	-5	-10	1	-2	1	1	0	-6	-7	11	11	6	9
NEW ORLEANS																		
5000	11	7	5	5	6	0	-1	-12	-8	-5	-5	-8	-14	-16	11	10	7	9
10000	20	15	8	8	12	4	2	-24	-17	-8	-9	-14	-23	-26	12	12	8	11
18000	33	15	8	18	17	6	4	-42	-27	-10	-23	-24	-39	-43	17	17	9	16
NEW ORLEANS																		
5000	-5	-4	-7	-5	-6	-10	-11	4	4	8	5	5	1	0	6	6	4	6
10000	-1	0	-8	-3	-4	-8	-10	0	0	8	3	3	-2	-3	7	7	5	6
18000	6	10	-4	0	2	-4	-5	-1	-12	4	-1	-4	-13	-15	9	9	5	8
NIAMEY																		
5000	-4	-2	1	-1	-2	-7	-8	4	1	-1	1	1	-3	-5	7	8	7	6
10000	-1	2	1	-1	0	-5	-7	0	-3	-1	1	-1	-7	-8	9	9	7	8
18000	-7	3	3	2	0	-6	-8	0	-7	-4	-4	-4	-11	-12	12	10	8	8
NIAMEY																		
5000	-3	-2	4	0	-1	-6	-7	3	2	-4	1	0	-4	-5	7	7	7	6
10000	-2	1	5	0	0	-5	-6	1	-3	-5	0	-2	-8	-9	9	9	7	8
18000	-12	-1	5	2	0	-5	-11	6	-3	-5	-3	-2	-9	-10	11	10	8	8

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--CENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN CENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E G L I V A L E N T H E A D I N D S												STANDARD DEVIATION				
	DIRECT						RETURN										
	JAN	APR	JUL	OCT	A75	A85	JAN	APR	JUL	OCT	A75	A85	JAN	APR	JUL	OCT	
NIAPEY																	856 N.MI.
5000	7	6	-2	2	2	-1	-2	-6	-6	3	-2	-3	-8	-9	6	6	5
10000	1	9	11	14	6	2	1	-1	-5	-11	-15	-10	-15	-17	6	7	7
18000	-7	2	10	6	2	-4	-6	6	-3	-10	-6	-4	-11	-12	9	8	7
NIAPEY																	1787 N.MI.
5000	-5	-1	-1	-2	-2	-7	-8	4	1	1	2	2	-2	-3	7	7	6
10000	2	3	-6	-2	-1	-7	-8	-3	-4	5	0	0	-6	-8	8	8	6
18000	0	8	3	4	2	-2	-3	-8	-12	-5	-6	-8	-14	-16	11	10	7
NIAPEY																	1642 N.MI.
5000	-4	-2	0	-1	-2	-7	-8	4	1	-1	1	0	-3	-4	7	7	6
10000	-2	0	1	-2	-1	-6	-8	1	-2	-2	1	-1	-6	-8	9	9	7
18000	-10	0	2	0	-1	-8	-10	3	-4	-4	-2	-3	-9	-10	12	10	7
NIAPEY																	1465 N.MI.
5000	-5	-1	0	-2	-2	-7	-8	5	1	0	3	2	-2	-3	7	7	6
10000	2	4	-6	-2	-1	-7	-8	-4	-5	5	1	-1	-7	-9	9	8	7
18000	2	10	2	5	4	-1	-3	-9	-13	-3	-6	-8	-15	-17	12	10	8
NIAPEY																	1694 N.MI.
5000	-5	-1	0	-1	-2	-7	-8	5	1	0	1	1	-3	-4	7	7	6
10000	-1	1	0	-2	-1	-6	-8	0	-3	-1	1	-1	-6	-8	9	9	7
18000	-7	2	2	1	0	-6	-8	0	-7	-4	-3	-4	-10	-12	12	10	7
NICCSIA																	1649 N.MI.
5000	-7	-6	-2	-4	-5	-10	-12	6	5	1	4	3	-1	-2	9	8	6
10000	-15	-14	-10	-11	-12	-19	-21	14	13	10	10	11	5	4	10	10	7
18000	-26	-25	-19	-19	-22	-30	-32	22	23	18	17	19	12	10	14	12	9
NICCSIA																	1953 N.MI.
5000	-7	-6	-2	-4	-5	-10	-11	6	5	1	4	3	0	-1	8	7	5
10000	-15	-14	-10	-11	-12	-19	-20	14	12	9	10	11	5	4	9	9	7
18000	-25	-25	-19	-18	-22	-29	-31	21	23	18	17	19	12	10	13	11	8
NICCSIA																	1972 N.MI.
5000	-8	-6	-9	-7	-8	-14	-15	7	5	9	6	6	1	0	10	8	7
10000	-12	-9	-11	-10	-11	-17	-19	10	8	10	8	9	2	1	11	10	8
18000	-21	-15	-17	-17	-18	-27	-29	16	11	14	13	13	4	2	15	13	11
NICCSIA																	1398 N.MI.
5000	-7	-6	-9	-6	-8	-14	-15	6	5	9	6	6	0	-1	11	9	8
10000	-12	-10	-11	-8	-11	-18	-19	10	8	11	7	9	2	0	11	11	8
18000	-15	-16	-18	-16	-18	-27	-29	15	12	16	13	14	4	2	16	14	11

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

***--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS IN KNOTS										STANDARD DEVIATION			
	DIRECT					RETURN								
	JAN	APR	JUL	OCT	0000	A75	A85	JAN	APR	JUL	OCT	0000	A75	A85
NICCSIA														
5000	-8	-6	-6	-5	RCME	-7	-13	-14	7	6	6	5	5	0
10000	-14	-13	-13	-9		-12	-20	-22	13	12	12	9	11	4
18000	-23	-22	-21	-18		-21	-31	-33	19	20	20	16	18	9
NICCSIA														
5000	-3	-4	-7	-3	SICCKHCLP	-5	-11	-12	1	3	6	2	3	-2
10000	-6	-5	-5	-5		-6	-12	-14	4	4	4	3	3	-2
18000	-13	-10	-9	-10		-11	-20	-23	8	5	5	5	5	-3
NICCSIA														
5000	6	6	4	4	TEMKAN	4	0	-1	-6	-6	-5	-4	-6	-11
10000	16	14	10	11		12	5	4	-16	-15	-10	-11	-13	-20
18000	28	26	16	20		21	12	10	-31	-28	-17	-21	-24	-34
NICCSIA														
5000	3	4	11	4	TEL AVIV	5	0	-2	-3	-4	-10	-4	-6	-12
10000	5	6	6	3		5	-2	-4	-7	-8	-7	-4	-7	-15
18000	7	11	11	4		8	-2	-5	-15	-17	-13	-8	-14	-25
NICCSIA														
5000	-8	-5	-4	-4	TCMEJCA	-6	-11	-12	7	5	4	4	4	0
10000	-14	-13	-13	-10		-12	-19	-21	13	12	12	10	11	5
18000	-22	-22	-22	-18		-22	-25	-31	18	15	21	16	18	10
NICCSIA														
5000	-9	-6	-2	-4	TUNIS	-5	-12	-13	8	6	1	4	4	-1
10000	-16	-15	-11	-11		-14	-21	-22	15	14	11	10	12	5
18000	-27	-27	-19	-19		-23	-33	-35	24	25	18	18	20	11
NICCSIA														
5000	6	7	6	4	ZAMECAN	5	1	0	-5	-7	-6	-4	-6	-10
10000	15	14	7	9		11	5	4	-16	-14	-7	-9	-12	-18
18000	31	28	14	17		21	13	11	-34	-30	-14	-18	-23	-33
NICCSIA														
5000	-8	-5	-5	-4	ZARAGOZA	-6	-12	-13	7	5	5	4	5	0
10000	-14	-13	-13	-10		-12	-19	-21	13	12	13	9	11	5
18000	-22	-21	-21	-18		-21	-29	-31	18	19	21	16	18	10
OPAN														
5000	-3	-5	-2	-4	PCRT LYALTEY	-4	-11	-13	3	4	3	4	3	-3
10000	-11	-12	-6	-10		-10	-19	-21	9	11	6	9	8	0
18000	-19	-21	-17	-16		-15	-29	-31	15	19	17	15	16	6

*HEADWINDS—COMPUTED FOR A 120-KT AIRSPEED.

**A—GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCAFC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	APR	OCT	JAN	APR	JUL	OCT	APR	OCT	JAN	APR	JUL	OCT
CRAN																
5000	-6	-2	-3	-2	-4	-11	-13									
10000	-7	-2	0	-2	-3	-11	-13									
18000	-14	-6	-3	-6	-7	-18	-21									
ORAN																
5000	-3	0	-1	0	-2	-8	-10									
10000	C	1	4	2	1	-6	-8									
18000	-4	3	7	4	2	-8	-10									
CRAN																
5000	3	2	-1	1	1	-3	-4									
10000	-3	-4	-1	-1	-3	-7	-9									
18000	-8	-10	-3	-4	-7	-12	-14									
CRAN																
5000	0	2	0	2	C	-5	-7									
10000	6	7	7	7	7	-1	-3									
18000	7	14	18	12	12	2	0									
CRAN																
5000	-1	0	0	1	C	-6	-7									
10000	C	1	4	3	2	-4	-6									
18000	-3	2	8	5	3	-6	-9									
CRAN																
5000	7	6	2	4	4	C	-1									
10000	15	14	10	11	12	6	5									
18000	25	25	17	17	20	13	11									
CRAN																
5000	-7	-2	-5	-3	-5	-12	-14									
10000	-10	-5	-4	-6	-7	-15	-18									
18000	-18	-11	-9	-10	-12	-23	-26									
CRAN																
5000	3	5	2	3	3	-3	-5									
10000	12	12	8	10	10	2	0									
18000	18	21	19	16	16	8	6									
CRAN																
5000	-6	0	-4	-1	-3	-11	-13									
10000	-4	0	0	-1	-1	-10	-12									
18000	-10	-1	0	-2	-3	-14	-17									

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E Q U I V A L E N T H E A D W I N D S *														STANDARD DEVIATION
	DIRECT				RETURN										
	JAN	APR	JUL	OCT	**A5C	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85	
PARAMARIEC															
5000	6	7	11	8	E	4	3	-7	-7	-11	-8	-9	-12	-13	1990 N.MI. 5 5 4 5
10000	2	3	9	5	4	C	0	-2	-2	-10	-5	-6	-10	-11	5 6 5 5
18000	-7	-7	6	1	-1	-8	-10	5	6	-6	-2	0	-6	-7	8 8 5 6
PANAMARIEC															
5000	0	9	14	10	IC	6	5	-9	-9	-14	-10	-11	-15	-16	1276 N.MI. 5 5 5 5
10000	6	6	13	8	E	3	2	-6	-6	-13	-7	-8	-13	-14	6 6 6 5
18000	-1	0	9	4	2	-3	-4	1	C	-9	-4	-3	-9	-10	8 8 6 6
PARAMARIEC															
5000	7	8	14	10	S	5	4	-8	-8	-13	-10	-10	-14	-15	1049 N.MI. 6 6 5 5
10000	5	6	11	7	7	2	1	-5	-6	-12	-7	-8	-12	-14	6 6 6 6
18000	-1	-1	7	3	2	-3	-5	1	1	-8	-3	-3	-8	-10	9 9 6 6
PARAMARIEC															
5000	-13	-12	-16	-14	-14	-18	-19	12	12	16	14	13	9	8	1461 N.MI. 6 5 4 6
10000	-5	-9	-9	-8	-5	-13	-13	9	5	9	8	8	5	4	5 5 6 4
18000	-6	-5	-7	-9	-7	-12	-13	5	5	6	9	6	1	0	8 6 7 5
PARAMARIEC															
5000	1	0	-1	1	C	-3	-3	-2	0	0	-2	-1	-5	-5	1035 N.MI. 5 4 4 5
10000	C	0	0	0	C	-4	-4	0	-1	-1	0	-1	-5	-6	6 5 6 5
18000	-2	C	0	-1	-1	-6	-7	1	C	-1	0	0	-4	-6	8 6 8 6
PARAMARIEC															
5000	1C	10	8	8	E	6	5	-10	-9	-8	-7	-9	-11	-12	1739 N.MI. 4 4 3 3
10000	5	9	16	9	IC	7	6	-9	-8	-15	-8	-10	-14	-15	4 4 5 4
18000	5	5	13	8	7	3	2	-5	-4	-12	-7	-8	-12	-13	7 6 5 5
PARAMARIEC															
5000	5	5	5	3	4	1	1	-5	-5	-5	-3	-5	-8	-9	1453 N.MI. 4 4 4 4
10000	4	4	7	6	5	1	0	-4	-4	-7	-6	-6	-9	-10	5 5 6 5
18000	1	2	0	3	1	-2	-4	-1	-2	-1	-3	-2	-7	-8	7 7 8 5
PARAMARIEC															
5000	0	9	14	10	IC	6	5	-8	-5	-14	-10	-11	-15	-16	1162 N.MI. 6 5 5 5
10000	6	6	12	7	7	3	2	-6	-6	-13	-7	-8	-13	-14	6 6 6 6
18000	-1	-1	8	4	2	-3	-4	1	C	-8	-3	-3	-8	-9	8 8 6 6
PARAMARIEC															
5000	7	7	5	7	6	4	3	-7	-7	-5	-7	-7	-9	-10	1675 N.MI. 4 3 3 3
10000	10	11	14	13	11	8	8	-9	-10	-14	-12	-12	-15	-16	4 4 5 4
18000	1C	5	8	12	E	4	3	-10	-5	-8	-12	-9	-14	-15	6 6 6 5

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION			
	DIRECT					RETURN					JAN APR JUL OCT			
	JAN	APR	JUL	OCT	**ASC	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85
PARAMARIEC	TO	TO	TCNCONTIA AB											
5000	10	9	10	8	5	6	6	-10	-5	-10	-8	-10	-12	-13
10000	5	8	15	8	5	6	5	-8	-8	-15	-8	-10	-14	-15
18000	3	3	12	7	6	1	0	-3	-3	-12	-6	-7	-11	-12
PARAMARIEC	TO	TO	WILLEMSTAD											
5000	10	10	14	12	11	7	6	-11	-10	-13	-11	-12	-15	-16
10000	8	9	14	9	5	6	5	-8	-8	-14	-9	-10	-14	-15
18000	1	3	11	6	5	C	-1	-1	-3	-11	-6	-6	-11	-13
PATRICK AFB	TO	TO	PCRT AU FFRACE											
5000	-5	-4	-7	-5	-6	-11	-12	5	4	7	5	5	0	-1
10000	1	0	-6	-3	-2	-5	-10	-2	C	6	3	1	-4	-6
18000	10	11	-4	-1	2	-5	-7	-12	-13	4	0	-4	-14	-17
PATRICK AFB	TO	TO	RAMEY AFB											
5000	-5	-4	-8	-5	-6	-11	-12	5	4	8	5	5	0	0
10000	1	0	-6	-3	-2	-8	-10	-2	0	6	3	1	-4	-6
18000	11	13	-3	0	2	-4	-6	-13	-15	4	0	-5	-15	-18
PATRICK AFB	TO	TO	SAN JOSE											
5000	1	-4	-1	0	-1	-5	-6	-2	4	1	0	0	-3	-4
10000	C	-2	-1	-2	-2	-6	-7	0	2	0	2	0	-3	-4
18000	C	0	-1	-2	-1	-7	-8	-2	-1	1	2	0	-6	-7
PATRICK AFB	TO	TO	SAN SALVADOR											
5000	1	-1	0	1	C	-4	-5	-1	0	0	-1	-1	-5	-6
10000	-2	-3	0	-1	-2	-7	-8	2	2	0	1	0	-4	-5
18000	-6	-6	0	-3	-3	-10	-12	4	4	0	3	2	-3	-5
PATRICK AFB	TO	TO	SANTO DOMINGO											
5000	-5	-4	-7	-5	-6	-11	-12	5	4	8	5	5	0	0
10000	1	0	-6	-3	-3	-6	-10	-2	0	6	3	1	-4	-6
18000	11	12	-4	0	2	-5	-6	-13	-14	4	0	-4	-15	-17
PATRICK AFB	TO	TO	SPAN AFB											
5000	4	2	2	0	2	-4	-6	-5	-2	-2	0	-3	-10	-11
10000	C	0	1	1	C	-7	-9	-4	-4	-1	-1	-3	-11	-13
18000	-4	-4	1	1	-1	-12	-14	-9	-5	-1	-5	-5	-16	-19
PATRICK AFB	TO	TO	TALARA											
5000	1	-3	-3	0	-2	-5	-5	-1	4	3	0	1	-1	-2
10000	1	-1	-2	-1	-1	-4	-5	-2	1	1	1	0	-3	-4
18000	C	0	-2	-1	-1	-5	-6	-2	-1	1	1	0	-5	-6

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--GIVES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT MEASUREMENTS AND STANCARE DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT MEASUREMENTS AND STANDARD DEVIATION											
	DIRECT						RETURN					
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC
PATRICK AFB	TO	TAMCONG AFB										
5000	1	-2	0	0	-3	-5	-1	2	0	-1	0	-5
10000	-2	-3	3	-2	-2	-7	2	3	0	2	1	-3
18000	-5	-5	0	-4	-4	-10	3	3	0	3	1	-3
PATRICK AFB	TO	WESTVIEW AFB										
5000	6	4	3	3	2	-2	-8	-6	-3	-3	-5	-12
10000	8	9	4	5	6	-1	-14	-12	-5	-6	-9	-17
18000	13	7	5	11	6	-1	-29	-18	-7	-17	-17	-30
PATRICK AFB	TO	WILLENSTADT										
5000	-4	-8	-8	-5	-6	-10	4	5	0	5	5	1
10000	7	-2	-8	-4	-4	-11	0	1	0	4	3	-1
18000	7	-5	-5	-2	6	-7	-9	-9	5	1	-2	-10
PCAT AU PRINCE	TO	RAMEY AFB										
5000	-10	-7	-13	-9	-10	-17	10	8	13	10	13	5
10000	-6	-3	-12	-5	-7	-15	6	3	12	5	6	0
18000	1	5	-6	-3	-2	-11	-2	-6	7	3	0	-7
PCAT AU PRINCE	TO	SAN JOSE										
5000	11	0	6	6	5	1	-11	6	-9	-9	-9	-10
10000	7	3	10	4	5	1	-7	-3	-13	-3	-6	-11
18000	4	2	6	3	3	-1	-4	-2	-9	-3	-4	-10
PCAT AU PRINCE	TO	SAN SALVADOR										
5000	11	5	10	9	6	5	-11	-5	-10	-9	-9	-13
10000	6	4	12	5	6	1	-9	-4	-12	-5	-7	-12
18000	2	3	8	3	3	-2	-2	6	-7	-3	-4	-9
PORT AU PRINCE	TO	SPAIN AFB										
5000	2	2	4	2	2	-3	-3	-2	-4	-2	-1	-8
10000	-5	-1	3	2	6	-4	3	6	-3	-2	-1	-7
18000	-14	-13	2	-1	-5	-10	9	0	-2	0	2	-5
PORT AU PRINCE	TO	TALARA										
5000	3	0	-1	1	6	-2	-3	6	1	0	0	-3
10000	6	2	2	2	3	-1	-9	-2	-4	-2	-4	-7
18000	4	1	1	2	2	-3	-4	-1	-2	-3	-3	-7
PCAT AU PRINCE	TO	TAMCONG AFB										
5000	11	4	10	9	6	4	-11	-4	-10	-9	-9	-13
10000	6	4	12	5	6	1	-9	-4	-12	-5	-7	-12
18000	2	0	8	3	3	-2	-2	0	-7	-3	-4	-9

MEASUREMENTS--COMPUTED FOR A 120-KT AIRSPEED.

000--DECIKES ANNUAL EQUIVALENT MEASUREMENTS FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN DENOTES MEASUREMENTS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

WEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	
PORT AU PRINCE	TO	2	3	2	2	2	-2	-3	-3	-2	-3	-3	1417 N.M.
5000	1	2	3	2	2	2	0	-3	-3	-3	-3	-3	
10000	-4	3	2	2	2	2	0	-3	-3	-3	-3	-3	
10000	-7	-5	1	3	3	3	-4	-2	-2	-2	-4	-12	12
PORT AL PRINCE	TO	-4	-9	-5	-5	-5	1	4	0	0	4	0	691 N.M.
5000	-2	-4	-9	-5	-5	-5	1	4	0	0	4	0	
10000	-3	-4	-10	-4	-4	-4	3	4	10	3	3	0	
10000	4	3	-5	-2	-1	-1	-4	-4	5	2	0	-7	0
PORT LVALTEY	TC	-1	-1	0	0	0	1	0	0	0	0	0	1270 N.M.
5000	-2	-1	-1	0	0	0	1	0	0	0	0	0	
10000	-4	0	1	0	0	0	1	-1	-3	-3	-2	-10	
10000	-10	-3	1	-2	-3	-3	2	-1	-4	-3	-3	-13	15
PORT LVALTEY	TO	0	0	0	1	1	0	-1	0	0	-1	-7	1195 N.M.
5000	-1	0	0	0	1	1	0	-1	0	0	-1	-7	
10000	1	3	6	5	4	4	-3	-3	-7	-4	-4	-13	
10000	-1	3	11	7	6	6	-5	-5	-14	-11	-11	-20	15
PORT LVALTEY	TO	2	-3	0	0	0	-3	-2	4	3	0	-3	1007 N.M.
5000	3	-3	0	0	0	0	-3	-2	4	3	0	-3	
10000	-1	-4	-4	-3	-4	-4	0	-3	-7	-4	-3	-3	
10000	-5	-7	-4	-4	-5	-5	-5	-5	-14	-11	-11	-20	15
PORT LVALTEY	TC	2	1	2	1	1	-2	-3	-1	-3	-3	-9	1007 N.M.
5000	1	2	1	2	1	1	-2	-3	-1	-3	-3	-9	
10000	4	0	0	0	0	0	-10	-10	-9	-9	-10	-17	
10000	9	15	10	13	14	14	-14	-17	-19	-15	-17	-26	15
PORT LVALTEY	TO	1	2	2	2	2	-1	-2	-2	-4	-3	-9	1709 N.M.
5000	6	1	2	2	2	2	-1	-2	-2	-4	-3	-9	
10000	1	3	6	5	4	4	-3	-4	-7	-7	-9	-12	
10000	-1	3	10	6	4	4	-6	-6	-13	-12	-11	-20	15
PORT LVALTEY	TC	1	2	2	2	2	0	-1	0	0	0	-7	791 N.M.
5000	-1	1	2	2	2	2	0	-1	0	0	0	-7	
10000	-1	2	4	3	2	2	0	-4	-4	-4	-4	-12	
10000	-5	3	8	2	2	2	0	-7	-11	-6	-7	-10	15
PORT LVALTEY	TC	4	2	4	2	2	-4	-5	-2	-4	-4	-10	691 N.M.
5000	3	4	2	4	2	2	-4	-5	-2	-4	-4	-10	
10000	11	11	7	10	5	5	-13	-12	-8	-10	-11	-19	
10000	17	20	10	15	17	17	-21	-22	-19	-16	-20	-29	15

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.
--CIRCLES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AND ROUTES

WEIGHT IN POUNDS	EQUIVALENT HEADINGS												STANDARD DEVIATION
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	
PUNT LVALLEY	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	-1	1	0	1	1	0	0	-2	0	-1	-1	-9	11
10000	1	5	6	5	4	-3	-4	-6	-6	-6	-14	-16	14
18000	C	7	12	6	6	-4	-7	-5	-11	-14	-11	-23	10
PRESTBICK	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	10	4	7	7	6	-2	-4	-12	-5	-9	-9	-20	15
10000	12	6	8	10	8	C	-3	-14	-8	-12	-11	-24	17
18000	20	10	11	14	13	C	-4	-25	-14	-19	-10	-37	24
PRESTBICK	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	8	4	7	5	6	-1	-3	-9	-5	-7	-7	-17	13
10000	10	5	7	7	7	-1	-3	-13	-7	-9	-10	-20	14
18000	16	7	8	5	5	-1	-4	-21	-11	-12	-15	-30	19
PRESTBICK	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	-3	-1	1	1	-1	-8	-9	0	C	-1	-2	-10	12
10000	-6	-6	-2	-	-5	-13	-15	2	4	1	0	-6	13
18000	-15	-15	-7	-11	-12	-24	-26	7	10	4	0	-7	10
PRESTBICK	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	5	5	7	13	7	0	-2	-11	-6	-7	-11	-20	14
10000	10	9	10	12	10	C	-1	-12	-10	-11	-12	-24	16
18000	16	11	14	16	14	C	-2	-23	-16	-17	-20	-37	23
PRESTBICK	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	-3	-2	-1	-2	-2	-8	-10	1	1	0	1	-9	10
10000	-2	-2	-1	-1	-2	-9	-13	3	C	0	0	-9	11
18000	-6	-9	-4	-4	-6	-15	-18	-1	4	1	0	-11	15
PRESTBICK	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	2	1	1	0	C	-7	-9	-4	-2	-2	-1	-13	13
10000	2	0	-2	-1	-1	-9	-11	-6	-1	0	0	-13	15
18000	4	3	-3	-2	-1	-12	-15	-12	-5	-1	-4	-21	20
PRESTBICK	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	6	4	4	7	5	-2	-4	-8	-5	-5	-7	-17	13
10000	6	6	7	8	6	-1	-3	-9	-8	-8	-9	-20	14
18000	8	2	8	10	7	-5	-8	-15	-6	-11	-15	-28	20
PRESTBICK	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
5000	8	3	6	3	4	-1	-3	-9	-4	-9	-9	-19	12
10000	5	4	6	5	5	-1	-3	-11	-6	-7	-7	-16	13
18000	13	5	5	6	6	-3	-5	-19	-10	-9	-12	-26	18

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION	
	DIRECT					RETURN					JAN	APR
	JAN	APR	JUL	OCT	0000	0000	0000	0000	0000	0000		
PRESTON 5000 10000 18000	4	1	3	0	2	-6	-8	-9	-13	-15	14	12
	5	0	0	0	0	-7	-9	-10	-13	-15	15	14
	8	2	0	0	1	-10	-13	-15	-18	-21	21	19
RAMEY AFB 5000 10000 18000	12	3	8	7	7	3	2	1	-2	-11	6	5
	6	4	11	5	7	2	1	1	-1	-12	6	6
	3	1	8	4	4	-1	-2	-4	-1	-11	9	8
RAMEY AFB 5000 10000 18000	11	6	11	9	5	5	4	4	-4	-11	6	5
	6	4	13	5	7	2	1	1	-1	-12	6	6
	1	-1	8	4	4	-2	-4	-4	-1	-11	9	8
RAMEY AFB 5000 10000 18000	10	8	13	10	10	5	4	4	-4	-11	6	5
	6	4	13	5	7	2	1	1	-1	-12	6	6
	-2	-6	6	3	3	-7	-9	-9	-1	-11	9	8
RAMEY AFB 5000 10000 18000	2	1	5	3	2	-2	-3	-3	-3	-10	8	7
	-7	-2	3	1	-1	-7	-9	-9	-1	-12	10	9
	-18	-16	1	-2	-7	-18	-21	-21	-1	-11	13	12
RAMEY AFB 5000 10000 18000	2	3	6	2	1	0	-1	0	-1	-10	8	7
	7	3	5	4	4	1	0	0	-1	-12	10	9
	5	2	3	4	4	0	-1	-1	-1	-11	13	12
RAMEY AFB 5000 10000 18000	11	5	11	10	10	5	4	4	-4	-11	6	5
	6	4	13	5	7	2	1	1	-1	-12	6	6
	1	0	8	4	4	-2	-4	-4	-1	-11	9	8
RAMEY AFB 5000 10000 18000	0	2	4	2	2	-3	-4	-4	-4	-10	8	7
	-7	1	2	1	1	-7	-9	-9	-1	-12	10	9
	-13	-10	0	0	-5	-14	-17	-17	-1	-11	14	13
RAMEY AFB 5000 10000 18000	5	2	0	1	1	-2	-3	-3	-3	-10	8	7
	1	0	-1	0	0	-5	-7	-7	-1	-12	10	9
	5	3	0	1	1	-4	-5	-5	-1	-11	11	10

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS														STANDARD DEVIATION				
	DIRECT				RETURN														
	JAN	APR	JUL	OCT	0000	0700	1400	2100	JAN	APR	JUL	OCT	0000	0700	1400	2100	JAN	APR	JUL
RECIFE																			
5000	9	5	7	7	6	3	2	-9	-4	-7	-7	-7	-7	-11	-12	6	4	5	8
10000	2	4	3	3	2	-3	-4	-3	-4	0	-3	-3	-3	-8	-9	8	7	7	8
18000	1	0	-4	-3	-1	-5	-10	-2	0	2	1	0	0	-7	-9	11	9	12	9
RECIFE																			
5000	-7	-7	-5	-7	-7	-10	-11	7	7	4	6	6	6	3	2	5	3	4	5
10000	-7	-7	-7	-10	-8	-12	-12	7	8	7	11	8	8	4	4	5	4	5	5
18000	-8	-3	-8	-8	-7	-12	-13	8	3	8	8	6	6	2	0	7	6	7	6
RECIFE																			
5000	10	8	11	6	5	4	4	-10	-8	-11	-6	-9	-9	-13	-13	5	3	4	6
10000	6	8	0	6	5	0	0	-6	-8	-1	-6	-6	-6	-10	-11	6	5	6	5
18000	4	2	-5	2	1	-4	-5	-5	-2	4	-2	-2	-2	-7	-8	8	6	9	6
RHEIA MAIN																			
5000	6	4	6	4	3	-2	-4	-7	-5	-7	-4	-6	-6	-14	-16	14	12	10	11
10000	7	4	5	3	4	-4	-7	-9	-6	-7	-5	-7	-7	-17	-19	16	14	12	14
18000	10	3	3	3	4	-8	-11	-16	-7	-7	-8	-10	-10	-23	-26	22	19	15	19
RHEIA MAIN																			
5000	2	1	4	4	2	-5	-7	-4	-2	-5	-6	-5	-5	-13	-15	14	13	10	13
10000	1	1	4	4	2	-6	-9	-4	-3	-6	-7	-6	-6	-15	-17	16	14	11	14
18000	-2	1	9	6	3	-10	-14	-6	-7	-13	-13	-11	-11	-24	-27	23	21	16	21
RHEIA MAIN																			
5000	6	5	9	5	6	0	0	-7	-6	-10	-6	-8	-8	-13	-15	18	16	13	17
10000	10	9	11	7	5	2	1	-12	-10	-11	-8	-11	-11	-17	-19	18	16	13	17
18000	15	13	15	12	13	5	3	-20	-17	-17	-15	-18	-18	-26	-28	19	17	13	19
RHEIA MAIN																			
5000	0	-1	-2	-2	-2	-10	-12	0	0	1	1	0	0	-7	-9	13	12	10	12
10000	-5	-5	-9	-8	-8	-16	-18	2	4	8	6	5	5	-3	-5	14	13	10	12
18000	-7	-9	-15	-13	-12	-23	-26	0	5	12	9	7	7	-4	-8	20	18	13	17
RHEIA MAIN																			
5000	1	1	3	4	2	-4	-6	-3	-2	-3	-5	-4	-4	-10	-12	11	10	8	11
10000	0	0	3	2	1	-6	-8	-3	-2	-4	-4	-4	-4	-12	-14	13	12	10	12
18000	-2	-3	5	3	0	-11	-14	-6	-2	-8	-10	-7	-7	-19	-22	19	18	14	17
RHEIA MAIN																			
5000	0	3	5	2	3	-3	-5	-7	-4	-6	-3	-5	-5	-13	-15	13	11	9	10
10000	5	3	4	1	2	-5	-7	-7	-5	-6	-3	-6	-6	-14	-17	14	13	11	13
18000	7	0	-1	0	0	-10	-12	-13	-4	-3	-5	-6	-6	-10	-13	19	17	13	16

*HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--DEFACTS ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT MEASUREMENTS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT MEASUREMENTS												STANDARD DEVIATION			
	DIRECT						RETURN									
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	DEC
RHEIN MAIN																
5000	6	0	-1	-2	-1	-11	-1	6	0	1	0	-8	14	12	10	12
10000	-3	-4	-8	-7	-6	-17	0	2	7	3	3	-5	19	14	11	12
15000	-5	-7	-13	-12	-10	-25	-1	3	10	0	5	-7	21	19	14	10
RIO DE JANEIRO																
5000	4	0	0	0	1	-4	0	-3	0	0	-1	-3	9	3	0	7
10000	-4	-2	-12	-8	-6	-14	4	2	12	6	5	0	0	7	0	0
15000	-4	-4	-17	-10	-10	-21	4	4	15	14	9	1	11	9	12	10
RIO DE JANEIRO																
5000	-1	0	-3	-1	-2	-7	2	0	2	1	1	-2	9	9	0	7
10000	-9	-9	-13	-13	-12	-19	0	0	12	12	10	4	0	0	0	0
15000	-14	-10	-22	-23	-17	-29	12	9	19	20	14	0	12	10	13	12
ROME																
5000	-1	-2	-1	0	-2	-10	0	1	0	0	0	-7	12	11	9	10
10000	-2	-2	0	0	-1	-12	0	0	-1	-2	-1	-9	10	13	10	12
15000	-8	-2	2	0	-2	-17	1	-2	-7	-3	-4	-15	19	17	14	17
ROME																
5000	5	4	5	5	4	-1	-8	-3	-9	-3	-8	-11	9	7	6	7
10000	13	11	9	9	10	4	-14	-12	-13	-13	-12	-10	9	9	7	9
15000	15	19	17	16	17	10	-23	-21	-10	-10	-20	-20	13	12	9	11
ROME																
5000	7	6	7	5	6	0	-8	-8	-7	-3	-7	-13	10	0	7	0
10000	12	12	12	9	11	4	-14	-13	-12	-9	-12	-19	11	11	0	10
15000	20	20	19	15	16	9	-24	-23	-23	-17	-21	-33	16	14	11	12
ROME																
5000	-3	-3	-4	-3	-4	-13	9	2	4	3	3	-7	12	11	9	11
10000	-12	-10	-13	-10	-12	-20	10	9	12	9	10	1	14	13	10	12
15000	-16	-16	-22	-17	-19	-31	12	14	21	15	16	3	19	16	12	19
ROME																
5000	6	-1	0	1	0	-8	-1	6	0	-2	-1	-7	10	9	7	9
10000	-2	-1	3	3	-1	-7	0	6	-1	-2	-1	-9	11	10	0	10
15000	-6	-4	2	0	-2	-15	-1	-1	-9	-6	-4	-14	16	15	12	19
ROME																
5000	3	2	3	3	2	-7	-3	-2	-3	0	-7	-12	14	13	10	11
10000	-2	-1	2	-2	-1	-10	0	0	-4	0	-1	-11	15	14	12	14
15000	6	-7	-8	-5	-4	-23	-5	3	4	1	-1	-10	20	18	15	16

MEASUREMENTS--COMPUTED FOR A 120-KT AIRSPEED.
---CIRCLES ANNUAL EQUIVALENT MEASUREMENTS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN CHANGES MEASUREMENTS.

EQUIVALENT HEADINGS AND STANDARD DEVIATION IN HOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADINGS												STANDARD DEVIATION			
	DIRECT												N.M.			
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT
ADME	TO ZAMAGAZA												361 N.M.			
5000	-6	-3	-5	-3	-3	-13	3	3	4	3	4	3	13	12	10	11
10000	-13	-10	-13	-10	-12	-21	11	9	13	9	10	10	19	14	11	13
10000	-17	-16	-21	-18	-15	-36	13	13	21	16	16	16	20	17	13	16
SAN JCSE	TO SAN SALVADOR												370 N.M.			
5000	5	9	3	-2	3	-1	-3	-8	-2	2	-3	-3	7	6	4	6
10000	4	5	11	6	6	1	-4	-3	-11	-3	-7	-11	7	6	6	6
10000	4	3	11	6	6	1	-4	-3	-11	-3	-7	-11	11	9	7	8
SAN JCSE	TO SANTO ESPINGO												971 N.M.			
5000	-11	-2	-7	-6	-7	-11	12	2	7	7	6	2	6	5	4	5
10000	-7	-4	-11	-4	-7	-12	7	4	11	4	4	1	6	6	6	6
10000	-4	-2	-7	-4	-3	-16	4	2	7	4	4	3	9	8	6	7
SAN JCSE	TO SPAN APO												1487 N.M.			
5000	0	2	1	0	1	-3	0	-4	-1	0	-1	-1	7	7	5	6
10000	1	2	1	2	1	-3	-2	-3	-2	-2	-3	-7	8	7	5	7
10000	-1	-1	1	2	1	-6	-3	-2	-1	-4	-3	-9	10	10	6	9
SAN JCSE	TO TALARA												885 N.M.			
5000	1	-2	-5	-1	-2	-5	-1	3	3	3	2	2	3	3	4	3
10000	2	0	-4	0	-1	-4	-3	0	3	3	0	0	3	4	6	5
10000	-2	-2	-3	-2	-3	-8	2	2	3	3	2	2	9	8	7	6
SAN JCSE	TO TENCENTIA AR												300 N.M.			
5000	2	0	2	-2	2	-2	-2	-8	-2	3	-2	-7	7	7	5	6
10000	2	4	0	4	4	1	-2	-2	-3	-4	-5	-10	7	6	6	6
10000	3	2	9	5	5	-1	-2	-3	-2	-9	-5	-12	11	9	7	8
SAN JCSE	TO MILLERSTAC												901 N.M.			
5000	-12	-7	-6	-5	-6	-11	12	7	6	5	7	4	3	3	3	4
10000	-10	-6	-15	-6	-10	-14	10	7	15	7	9	5	5	5	5	5
10000	-5	-3	-11	-6	-7	-12	5	3	12	6	6	1	9	8	6	7
SAN SALVADOR	TO SANTO ESPINGO												1143 N.M.			
5000	-11	-5	-10	-9	-5	-13	11	6	11	9	9	5	6	5	4	5
10000	-6	-4	-12	-5	-7	-12	6	4	13	5	6	2	7	6	6	6
10000	-2	0	-8	-4	-4	-9	2	0	8	4	3	-2	9	8	5	7
SAN SALVADOR	TO SPAN APO												1305 N.M.			
5000	1	2	1	0	1	-3	-2	-3	-1	0	-2	-7	8	7	5	7
10000	4	4	1	2	1	-2	-5	-5	-1	-2	-3	-8	8	8	5	7
10000	6	4	1	4	3	-2	-11	-8	-1	-6	-6	-14	11	11	6	9

HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.

•••--GIVES ANNUAL EQUIVALENT HEADINGS FOR INDICATED PER CENT RELIABILITIES.
 MINUS SIGN DENOTES HEADINGS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION		
	DIRECT						RETURN								
	JAN	APR	JUL	OCT	NOV	DEC	JAN	APR	JUL	OCT	NOV	DEC			
SAN SALVADOR															
5000	0	-3	-4	-1	-2	-5	-6	0	3	4	1	1	-1	-1	1190 N.MI.
10000	0	-2	-6	-2	-3	-6	-7	-1	2	5	2	1	-1	-2	4 4 3
15000	-4	-3	-6	-4	-5	-9	-11	4	5	5	4	4	0	-1	7 5 5 6 6
SAN SALVADOR															
5000	2	3	2	1	2	-2	-3	-4	-4	-2	-1	-3	-8	-9	1915 N.MI.
10000	6	6	2	3	3	0	-1	-9	-8	-3	-4	-6	-11	-13	7 7 5 7 7
15000	10	6	3	7	5	0	-1	-20	-13	-4	-11	-11	-20	-22	8 8 5 6 10
SAN SALVADOR															
5000	-10	-8	-9	-6	-5	-12	-13	10	8	9	7	8	5	4	1180 N.MI.
10000	-6	-6	-15	-6	-5	-14	-15	9	7	15	7	9	5	4	5 4 4 4
15000	-3	-2	-10	-6	-6	-11	-12	3	2	11	6	6	0	-1	6 5 5 6 6
SANTA CRUZ															
5000	-3	-1	-1	-1	-2	-6	-7	3	1	1	1	1	-2	-3	1042 N.MI.
10000	0	-1	-8	-1	-2	-5	-10	0	1	7	0	1	-4	-5	5 7 9 8 7
15000	-5	-2	-10	-9	-7	-15	-17	3	1	4	5	3	-4	-6	12 9 14 11
SANTA CRUZ															
5000	6	5	4	5	5	2	1	-6	-5	-3	-5	-5	-8	-9	1315 N.MI.
10000	4	5	0	5	3	0	-1	-3	-5	0	-5	-4	-8	-8	3 5 5 5 5
15000	3	0	-2	3	0	-4	-5	-4	0	1	-4	-2	-7	-8	4 4 6 6 6
SANTA CRUZ															
5000	2	1	0	0	0	-1	-1	-2	-1	0	0	-1	-3	-4	1011 N.MI.
10000	0	1	-1	0	0	-3	-4	0	-1	0	0	0	-3	-4	3 3 3 3 3
15000	-1	0	1	0	0	-4	-5	0	0	-1	-1	-1	-5	-6	4 4 5 4 4
SANTIAGO															
5000	7	4	5	5	5	1	1	-7	-4	-5	-4	-5	-9	-10	1031 N.MI.
10000	0	0	2	-2	0	-4	-5	0	0	-3	1	0	-5	-6	5 4 6 6 5
15000	-2	-3	-5	-4	-4	-5	-11	1	3	2	1	1	-3	-4	6 5 6 6 6
SANTO DOMINGO															
5000	2	2	5	2	2	-2	-3	-3	-2	-5	-3	-4	-9	-10	1090 N.MI.
10000	-6	-2	3	1	-1	-7	-9	4	0	-3	-2	-1	-7	-8	8 8 6 8 8
15000	-16	-14	2	-1	-6	-17	-19	11	10	-2	0	2	-4	-6	10 9 7 8 10
SANTO DOMINGO															
5000	2	1	0	1	0	-1	-2	-2	-1	0	-1	-1	-4	-4	1537 N.MI.
10000	6	3	4	3	4	1	0	-6	-3	-5	-3	-5	-8	-9	4 3 3 3 3
15000	5	2	2	4	3	-1	-2	-5	-2	-3	-4	-4	-8	-9	4 4 5 4 5

HEADWINDS--COMPUTED FOR A 120-KT AIRSPEED.

**A--CENTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

STANDARD DEVIATION

*HEADINGS--COMPUTED FOR A 120-KT AIRSPEED.
**A--CENTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MIAS SIGA DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANCARC DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS												STANDARD DEVIATION					
	DIRECT						RETURN											
	JAN	APR	JUL	OCT	**A5C	A75	A85	JAN	APR	JUL	OCT	**A50	A75	A85	JAN	APR	JUL	OCT
SONCRESTRCP																		
5000	-4	-2	-3	-5	-4	-10	-11	2	1	2	4	2	-3	-5	9	9	8	9
10000	-10	-4	-5	-7	-7	-14	-16	6	2	3	4	3	-3	-4	11	11	9	10
18000	-20	-11	-8	-15	-14	-24	-26	11	5	4	8	6	-2	-5	15	15	11	15
STCCN+CLP																		
5000	2	0	5	3	2	-2	-4	-3	-1	-5	-4	-4	-9	-10	8	8	7	8
10000	6	3	4	6	4	-1	-2	-8	-5	-4	-8	-7	-13	-14	10	9	8	9
18000	11	7	4	9	7	C	-2	-16	-11	-7	-13	-12	-21	-23	13	13	10	13
STGCK+CLP																		
5000	2	3	7	3	3	-1	-3	-3	-4	-7	-3	-5	-10	-12	9	8	7	8
10000	4	4	4	3	3	-2	-4	-6	-6	-5	-5	-6	-12	-14	10	10	8	9
18000	7	5	6	5	5	-3	-5	-13	-10	-9	-9	-11	-19	-22	15	13	11	13
STUCK+CLP																		
5000	-3	-3	-2	-3	-3	-8	-10	2	3	2	2	2	-2	-4	9	7	6	8
10000	-4	-4	-2	-3	-4	-10	-11	2	2	1	2	1	-4	-5	10	9	7	9
18000	-8	-12	-3	-4	-7	-16	-18	3	8	1	0	2	-5	-7	14	13	10	12
STOCK+CLP																		
5000	-3	-2	-3	-5	-4	-10	-12	0	1	2	3	1	-5	-6	11	10	8	10
10000	-4	-4	-7	-8	-6	-14	-15	1	3	6	6	4	-3	-4	12	11	9	10
18000	-7	-8	-14	-13	-11	-22	-24	0	3	10	8	5	-5	-8	18	16	12	16
STGCK+CLP																		
5000	2	0	2	3	1	-5	-7	-3	-1	-2	-4	-3	-10	-12	11	11	9	12
10000	C	-1	2	0	C	-9	-11	-1	-1	-3	-2	-2	-11	-13	15	13	11	14
18000	-1	-8	3	2	-1	-14	-18	-6	1	-6	-8	-5	-18	-22	22	20	16	20
STGCK+CLP																		
5000	0	1	1	0	C	-6	-7	-2	-2	-2	0	-2	-8	-10	11	10	8	9
10000	0	0	0	-2	-1	-8	-10	-2	-2	-1	0	-2	-9	-11	12	11	9	11
18000	1	-3	-7	-5	-4	-14	-17	-8	-1	3	0	-1	-12	-14	17	15	12	15
STCCN+CLP																		
5000	-2	-1	-3	-4	-3	-10	-12	0	0	2	3	1	-5	-7	12	10	9	11
10000	-4	-4	-7	-7	-6	-14	-16	1	2	5	5	3	-4	-6	13	12	9	11
18000	-6	-7	-13	-13	-11	-22	-24	-1	2	9	7	4	-7	-10	18	17	13	17
TALARA																		
5000	C	4	4	1	2	C	-1	0	-3	-4	0	-2	-5	-6	5	4	4	3
10000	-1	1	4	1	1	-2	-3	1	-1	-5	-2	-2	-6	-7	5	4	5	5
18000	3	3	5	3	3	-1	-2	-3	-3	-5	-4	-4	-9	-10	8	7	6	6

HEADWINDS—COMPUTED FOR A 120-KT AIRSPEED.

**A—CENTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.

MINUS SIGN DENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	EQUIVALENT HEADWINDS										STANDARD DEVIATION				
	DIRECT					RETURN					JAN APR JUL OCT				
	JAN	APR	JUL	OCT	0005C	A75	A85	JAN	APR	JUL	OCT	0005C	A75	A85	
TALARA															
5000	TC	-3	0	-2	-2	-4	-5	0	4	0	3	1	0	-1	1245 N.MI.
10000		-8	-5	-8	-7	-10	-11	9	5	7	6	6	3	2	3
18000		-7	-2	-5	-6	-10	-11	6	2	5	6	4	0	3	4
TEMRAA															5
5000	TC	-6	-3	-3	-5	-10	-11	6	7	3	4	4	0	-1	842 N.MI.
10000		-17	-15	-8	-11	-20	-22	16	15	8	11	12	5	3	7
18000		-32	-28	-15	-21	-34	-37	29	26	14	20	21	12	10	10
TEMRAA															12
5000	TC	-7	-5	-3	-4	-10	-11	6	5	3	4	4	0	-1	1902 N.MI.
10000		-15	-14	-10	-11	-19	-23	14	13	9	10	11	5	4	6
18000		-26	-25	-18	-19	-30	-32	23	23	17	17	19	12	10	8
TEMRAA															10
5000	TC	4	6	5	2	4	-2	-4	-6	-5	-1	-4	-10	-11	594 N.MI.
10000		9	8	4	6	6	-1	-10	-9	-4	-6	-8	-14	-16	6
18000		25	22	11	12	16	5	-31	-26	-12	-14	-20	-31	-34	9
TEL AVIV															16
5000	TC	-8	-6	-5	-4	-11	-12	7	5	4	4	4	0	-1	1920 N.MI.
10000		-14	-13	-13	-11	-15	-20	13	12	12	10	11	6	4	7
18000		-24	-23	-20	-18	-25	-31	20	21	19	16	18	11	9	8
TEL AVIV															13
5000	TC	-5	-7	-3	-4	-12	-13	8	6	3	4	5	0	-1	1251 N.MI.
10000		-16	-16	-11	-11	-21	-22	15	15	11	11	12	6	4	8
18000		-29	-28	-18	-19	-33	-35	25	26	17	18	20	12	10	10
TEL AVIV															16
5000	TC	6	8	5	4	1	0	-6	-7	-5	-4	-6	-10	-12	1346 N.MI.
10000		17	15	6	8	11	3	-17	-15	-6	-8	-12	-18	-20	6
18000		33	29	12	17	21	10	-36	-31	-12	-18	-23	-35	-38	7
TEL AVIV															8
5000	TC	-6	-6	-5	-4	-11	-13	7	5	5	4	5	0	-1	1763 N.MI.
10000		-14	-13	-13	-10	-15	-20	13	12	13	9	11	5	4	7
18000		-24	-23	-20	-18	-22	-31	20	20	19	16	18	11	9	9
TEL AVIV															14
5000	TC	1	1	3	2	1	-4	-2	-2	-3	-2	-3	-8	-9	1427 N.MI.
10000		2	2	3	2	2	-5	-3	-3	-3	-3	-4	-10	-11	6
18000		3	7	3	1	3	-7	-7	-10	-4	-3	-6	-15	-17	8

*HEADWINDS—COMPUTED FOR A 120-KT AIRSPEED.

**A—CENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN CENOTES HEADWINDS.

EQUIVALENT HEADWINDS AND STANDARD DEVIATION IN KNOTS FOR GREAT CIRCLE AIR ROUTES

HEIGHT IN FEET	E Q U I V A L E N T M E A S U R E M E N T S														STANDARD DEVIATION			
	DIRECT				RETURN													
	JAN	APR	JUL	OCT	0045C	A75	A85	JAN	APR	JUL	OCT	0045O	A75	A85	JAN	APR	JUL	OCT
TONCATTIA AE																		
5000	2	3	2	1	2	-2	-3	-3	-4	-2	-1	-3	-8	-9	8	7	5	7
10000	5	6	2	3	2	-1	-2	-9	-8	-3	-4	-6	-12	-13	8	8	6	7
18000	8	5	3	7	5	0	-2	-19	-12	-4	-11	-11	-19	-22	12	11	6	10
TONCATTIA AE																		
5000	-10	-7	-9	-8	-5	-12	-13	10	8	10	8	9	5	5	5	5	4	4
10000	-8	-6	-15	-6	-5	-14	-15	8	7	16	7	9	4	3	6	6	5	5
18000	-3	-2	-10	-6	-6	-11	-13	3	2	11	6	5	0	-1	9	8	6	7
TORREJCA																		
5000	0	1	2	3	1	-4	-5	-2	-2	-2	-5	-3	-9	-11	10	9	7	9
10000	0	2	5	4	2	-3	-5	-3	-4	-6	-6	-5	-12	-14	11	10	8	10
18000	-1	0	6	5	2	-7	-9	-6	-5	-9	-11	-8	-18	-20	16	14	11	14
TORREJCA																		
5000	7	4	5	3	4	-2	-3	-7	-5	-5	-4	-6	-12	-14	11	11	8	10
10000	13	10	12	10	11	3	1	-14	-11	-12	-11	-13	-21	-23	13	13	10	12
18000	17	16	19	15	16	6	4	-20	-18	-23	-17	-19	-29	-32	18	16	12	14
TORREJCA																		
5000	1	1	2	2	1	-6	-9	-2	-2	-2	-2	-3	-11	-13	13	13	11	13
10000	7	7	11	10	5	0	-2	-9	-9	-11	-10	-10	-20	-22	16	15	11	13
18000	7	12	19	13	13	0	-2	-12	-14	-20	-15	-16	-28	-31	21	19	14	18
TAGPSC																		
5000	0	0	0	-2	-1	-6	-7	-1	-1	0	0	-1	-6	-8	9	8	7	8
10000	0	0	-1	-2	-1	-8	-9	-2	-1	0	0	-1	-8	-9	11	10	8	10
18000	-1	-1	-6	-6	-4	-13	-15	-6	-3	2	0	-1	-11	-13	15	14	11	13
TAGPSC																		
5000	-2	-1	-2	-5	-3	-5	-11	0	0	1	3	1	-5	-6	10	9	7	10
10000	-3	-3	-5	-5	-5	-11	-13	0	1	4	3	1	-4	-6	11	10	8	10
18000	-5	-4	-9	-10	-8	-17	-20	-2	-2	-1	5	1	-8	-11	16	15	12	15
TUNIS																		
5000	-5	-5	-6	-4	-6	-14	-16	8	4	6	3	5	-2	-3	12	11	9	11
10000	-14	-11	-13	-10	-13	-21	-23	12	10	13	9	11	2	0	14	13	10	13
18000	-20	-16	-19	-16	-16	-25	-31	17	14	17	14	15	5	2	19	16	12	15
WESTOVER AFE																		
5000	-1	-3	-4	-2	-3	-8	-9	0	2	3	1	1	-2	-4	7	7	5	7
10000	1	-4	-3	-2	-3	-8	-9	-5	2	3	2	0	-4	-6	9	8	6	7
18000	0	0	-2	-5	-2	-8	-10	-9	-7	1	1	-3	-11	-13	12	11	6	10

*HEADWINDS—COMPUTED FOR A 120-KT AIRSPEED.

**A--DENOTES ANNUAL EQUIVALENT HEADWINDS FOR INDICATED PER CENT RELIABILITIES.
MINUS SIGN DENOTES HEADWINDS.

	LATITUDE DEG MIN	LONGITUDE DEG MIN	ELEVATION FT
ABADAN	30 22N	48 15E	10
ACCRA	5 36N	0 10W	214
ADANA	36 59N	35 17E	60
ADDIS ABABA	8 59N	38 47E	7642
ADEN	12 50N	45 2E	10
ALBROOK AFB	8 58N	79 33W	21
ALGER	36 46N	3 3E	82
AMMAN	31 57N	35 57E	2548
ANDREWS AFB	38 49N	76 51W	353
ANKARA	40 9N	33 3E	2950
ANTOFAGAST	23 26S	70 28W	400
ARGENTIA NS	47 19N	53 59W	55
ASCENSION ISLAND	7 55S	14 25W	20
ATHENS	37 58N	23 43E	351
ATKINSON	6 30N	58 15W	96
AVIANO AB	46 21N	12 36E	419
BAGHDAD	33 19N	44 27E	110
BAPRANQUILLA	10 52N	74 47W	44
BELEM	1 27S	48 29W	42
BITBURG AB	49 47N	6 34E	1237
BOGOTA	4 38N	74 9W	8260
BORDEAUX	44 50N	0 42W	157
BRIDGETOWN	13 6N	59 37W	30
BRINDISI	40 38N	17 57E	10
BUENOS AIRES	34 50S	58 32W	62
CAIRO	30 8N	31 24E	310
CAPE TOWN	33 58S	18 36E	151
CHABUNCA	53 0S	70 52W	120
CHATEAUX ROUX	46 52N	1 44E	525
CHAUMONT	48 4N	5 2E	1050
CHERRY PT MCAS	34 54N	76 53W	29
CORPUS CHRISTI	27 42N	97 17W	20
DAKAR	14 44N	17 30W	69
DHAHRAN	26 17N	50 10E	78
DIYARBAKIR	37 55N	40 12E	2221
DOVER AFB	39 8N	75 28W	27
EGLIN AFB	30 29N	86 31W	5
ELISABETHVILLE	11 39S	27 28E	4035
ELLINGTON AFB	29 36N	95 10W	39
ENGLAND AFB	31 19N	92 33W	89
FORT BENNING	32 32N	84 54W	252
FORT BRAGG/POPE	35 8N	78 56W	242
FORT EUSTIS	38 8N	76 37W	10
FORT RUCKER	31 14N	85 26W	325
FROBISHER	63 45N	68 38W	96

THE BOEING VERTOL COMPANY

0210-10600-2

	LATITUDE DEG MIN	LONGITUDE DEG MIN	ELEVATION FT
GOOSE AB	53 19N	60 25W	144
GUANTANAMO BAY	19 54N	75 9W	21
GUATAMALA CITY	14 34N	90 32W	4856
HAHN AB	49 57N	7 15E	1613
HARMON AFB	48 32N	58 33W	86
HAVANA	23 1N	82 23W	208
HOMESTEAD AFB	25 28N	80 24W	17
HUNTER AAF	32 1N	81 8W	70
ISTANBUL	40 58N	28 50E	89
IZMIR	38 24N	27 10E	82
JACKSONVILLE	30 25N	81 39W	24
JOHANNESBURG	26 8S	28 15E	5559
KANO	12 2N	8 32E	1533
KARACHI	24 54N	67 9E	80
KEFLAVIK	63 57N	22 37W	169
KEY WEST	24 33N	81 48W	9
KHARTOUM	15 37N	32 33E	1280
KINDLEY AFB	32 22N	64 41W	11
KINGSTON	17 54N	77 17W	110
KINSHASA/NDJILI	4 23S	15 26E	1014
LAGOS	6 55N	3 20E	132
LAJES FIELD	38 45N	27 5W	174
LAS PALMAS	27 55N	15 23W	79
LA PAZ	16 30S	68 12W	13402
LIMA	12 6S	77 1W	505
LISBON	38 43N	9 9W	313
LORING AFB	46 57N	67 53W	746
LUQA, MALTA	35 51N	14 29E	253
LUXOR	24 40N	32 42E	769
MANAGUA	12 10N	86 15W	172
MAURITIUS ISLAND	20 26S	57 41E	165
MCGUIRE AFB	40 2N	74 36W	127
MEDELLIN	6 13N	75 36W	4650
MILDENHALL	52 22N	0 28E	5
MOSCOW	55 48N	37 25E	623
NAIROBI	1 19S	36 56E	5327
NAPLES	40 52N	14 15E	489
NARSARSSUAK	61 11N	45 25W	136
NEW CUMBERLAND	40 13N	76 51W	106
NEW ORLEANS	30 1N	90 4W	13
NIAMEY	13 31N	2 6E	733
NICOSIA	35 9N	33 16E	73
ORAN	35 37N	0 37W	289

THE BOEING VERTOL COMPANY

D210-10600-2

	LATITUDE DEG MIN	LONGITUDE DEG MIN	ELEVATION FT
PARAMARIBO	5 27N	55 12W	66
PATRICK AFB	28 15N	80 36W	9
PORT AU PRINCE	18 35N	72 21W	121
PORT LYAUTEY	34 18N	6 36W	49
PRESTWICK	55 31N	4 36W	63
RAMEY AFB	18 30N	67 8W	228
RECIFE	8 45	34 53W	97
RHEIN MAIN	50 2N	8 34E	368
RIO DE JANEIRO	22 49S	43 15W	10
ROBERTS FIELD	6 14N	10 22W	27
ROME	41 54N	12 29E	184
SAN JOSE	9 56N	84 6W	3760
SAN SALVADOR	13 41N	89 6W	2014
SANTA CRUZ	17 27S	63 11W	1335
SANTIAGO	33 27S	70 42W	1706
SANTO DOMINGO	18 28N	69 54W	57
SHAW AFB	33 59N	80 29W	250
SONDRESTROM	67 1N	50 48W	165
STOCKHOLM	59 25N	17 53E	45
TALARA	4 34S	81 17W	249
TEHRAN	35 11N	51 20E	3960
TEL AVIV	32 0N	34 54E	130
THULE	76 32N	68 45W	251
TONCONTIN AB	14 2N	87 15W	3094
TORREJON	40 24N	3 43W	2188
TROMSO	69 39N	18 57E	33
TUNIS	36 50N	10 14E	13
WESTOVER AFB	42 12N	72 32W	244
WILLEMSTAD	12 11N	68 58W	26
ZAHEDAN	29 27N	60 54E	4716
ZARAGOZA	41 41N	0 4W	778

ABADAN		ADANA (CONT.)		ADEN		ALBROOK AFB (CONT.)	
ADANA	17	BORDEAUX	22	ABADAN	17	NEW ORLEANS	33
ADDIS ABABA	17	BRINDISI	22	ADANA	21	PARAMARIBO	33
ADEN	17	CAIRO	22	ADDIS ABABA	25	PATRICK AFB	33
AMMAN	17	CHATEAURoux	22	AMMAN	27	PORT AU PRINCE	33
ANKARA	17	CHAUMONT	22	ANKARA	28	RAMEY AFB	33
ATHENS	17	DMAMMAN	23	ATHENS	28	SAN JOSE	33
AVIANO AB	17	DIYARBAKIR	23	BAGHDAD	28	SAN SALVADOR	34
BAGHDAD	17	HAHN AB	23	CAIRO	28	SANTA CRUZ	34
BRINDISI	17	ISTANBUL	23	DMAMMAN	28	SANTO DOMINGO	34
CAIRO	18	IZMIR	23	DIYARBAKIR	28	SHAW AFB	34
DMAMMAN	18	KARACHI	23	ELISABETHVILLE	28	TALARA	34
DIYARBAKIR	18	KHARTOUM	23	ISTANBUL	28	TONCONTIN AB	34
ISTANBUL	18	LUGA, MALTA	23	IZMIR	28	WILLENSTAD	34
IZMIR	18	LUXOR	23	KARACHI	29		
KARACHI	18	MILDENHALL	24	KHARTOUM	29		
KHARTOUM	18	MOSCOW	24	LUXOR	29	ALGER	
LUGA, MALTA	18	NAPLES	24	NAIROBI	29	ACCRA	19
LUXOR	18	ORAN	24	NICOSIA	29	ADANA	21
MOSCOW	19	PRESTWICK	24	TEHRAN	29	AMMAN	34
NAPLES	19	RHEIN MAIN	24	TEL AVIV	29	ANKARA	34
NICOSIA	19	ROME	24	ZAHEDAN	29	ATHENS	35
ROME	19	STOCKHOLM	24			AVIANO AB	35
TEHRAN	19	TEHRAN	24	ALBROOK AFB		RITBURG AB	35
TEL AVIV	19	TEL AVIV	25	ANDREWS AFB	29	BORDEAUX	35
TUNIS	19	TORREJON	25	ATKINSON	30	BRINDISI	35
ZAHEDAN	19	TUNIS	25	BARRANQUILLA	30	CAIRO	35
		ZAHEDAN	25	BELEM	30	CHATEAURoux	35
		ZARAGOZA	25	BOGOTA	30	CHAUMONT	35
				BRIDGETOWN	30	DAKAR	35
ACCRA		ADDIS ABABA		CHERRY PT MCAS	30	DIYARBAKIR	36
ALGER	19	ABADAN	17	CORPUS CHRISTI	30	HAHN AB	36
ASCENSION ISLAND	20	ADANA	21	DOVER AFB	30	ISTANBUL	36
DAKAR	20	ADEN	25	EGLIN AFB	30	IZMIR	36
ELISABETHVILLE	20	AMMAN	25	FLYINGTON AFB	31	KANO	36
KANO	20	ANKARA	25	ENGLAND AFB	31	KEFLAVIK	36
KINSHASA/NDJILI	20	ATHENS	25	FORT BENNING	31	LAGOS	36
LAGOS	20	BAGHDAD	26	FORT BRAGG/PDPE	31	LAJES FIELD	36
LAS PALMAS	20	CAIRO	26	FORT EUSTIS	31	LAS PALMAS	36
LUGA, MALTA	20	DMAMMAN	26	FORT RUCKER	31	LISBON	37
NIAMEY	20	DIYARBAKIR	26	GUANTANAMO BAY	31	LUGA, MALTA	37
ORAN	21	ELISABETHVILLE	26	GUAYAMA LA CITY	31	LUXOR	37
PORT LYAUTEY	21	ISTANBUL	26	HAVANA	31	MILDENHALL	37
ROBERTS FIELD	21	IZMIR	26	HOMESTEAD AFB	32	MOSCOW	37
TUNIS	21	KANO	26	HUNTER AAF	32	NAPLES	37
		KARACHI	26	JACKSONVILLE	32	NIAMEY	37
ADANA		KHARTOUM	27	KEY WEST	32	NICOSIA	37
ABADAN	17	KINSHASA/NDJILI	27	KINDLEY AFB	32	ORAN	37
ADDIS ABABA	21	LUXOR	27	KINGSTON	32	PORT LYAUTEY	38
ADEN	21	NAIROBI	27	LA PAZ	32	PRESTWICK	38
ALGER	21	NICOSIA	27	LIMA	32	RHEIN MAIN	38
AMMAN	21	TEHRAN	27	MANAGUA	32	ROBERTS FIELD	38
ANKARA	21	TEL AVIV	27	MCGUIRE AFB	33	ROME	38
ATHENS	22	ZAHEDAN	27	MEDELLIN	33	STOCKHOLM	38
AVIANO AB	22			NEW CUMBERLAND	33	TEL AVIV	38
BAGHDAD	22					TORREJON	38
RITBURG AB	22						

ALGER (CONT.)		ANDREWS AFB (CONT.)		ANKARA (CONT.)		ARGENTIA NS (CONT.)	
TUNIS - - - - -	38	FORT BENNING- - - - -	43	KHARTOUM- - - - -	48	KEFLAVIK- - - - -	54
ZARAGOZA- - - - -	39	FORT BRAGG/POPE - - - -	43	LISBON- - - - -	49	KEY WEST- - - - -	54
AMMAN		FORT RUCKER - - - - -	44	LUQA, MALTA - - - - -	49	KINDLEY AFB - - - - -	54
ABADAN- - - - -	17	FROBISHER - - - - -	44	LUXOR - - - - -	49	LAJES FIELD - - - - -	54
ADANA - - - - -	21	GOOSE AB- - - - -	44	MILDENHALL- - - - -	49	LORING AFB- - - - -	54
ADDIS ABABA - - - - -	25	GUANTANAMO BAY- - - - -	44	MOSCOW- - - - -	49	MCGUIRE AFB - - - - -	54
ADEN- - - - -	27	GUATAMALA CITY- - - - -	44	NAPLES- - - - -	49	NARSARSSUAK - - - - -	55
ALGER - - - - -	34	HARMON AFB- - - - -	44	NICOSIA - - - - -	49	NEW CUMBERLAND- - - - -	55
ANKARA- - - - -	39	HAVANA- - - - -	44	ORAN- - - - -	49	NEW ORLEANS - - - - -	55
ATHENS- - - - -	39	HOMESTEAD AFB - - - - -	44	PORT LYAUTEY- - - - -	49	PATRICK AFB - - - - -	55
AVIANO AB - - - - -	39	MUNTER AAF- - - - -	44	PRESTWICK - - - - -	50	PORT AU PRINCE- - - - -	55
BAGHDAD - - - - -	39	JACKSONVILLE- - - - -	45	RHEIN MAIN- - - - -	50	PRESTWICK - - - - -	55
BITBURG AB- - - - -	39	KEY WEST- - - - -	45	ROME - - - - -	50	RAMEY AFB - - - - -	55
BORDEAUX- - - - -	39	KINDLEY AFB - - - - -	45	STOCKHOLM - - - - -	50	SANTO DOMINGO - - - - -	55
BRINDISI - - - - -	39	KINGSTON- - - - -	45	TEHRAN- - - - -	50	SHAW AFB- - - - -	55
CAIRO - - - - -	39	LORING AFB- - - - -	45	TEL AVIV- - - - -	50	SONDRESTROM - - - - -	56
CHATEAURoux - - - - -	40	MANAGUA - - - - -	45	TORREJON- - - - -	50	THULF - - - - -	56
CHAUMONT- - - - -	40	MEDELLIN- - - - -	45	TROMSO- - - - -	50	WESTOVER AFB- - - - -	56
DHAHRAN - - - - -	40	NARSARSSUAK - - - - -	45	TUNIS - - - - -	50	ASCENSION ISLAND	
DIYARRAKIR- - - - -	40	NEW ORLEANS - - - - -	45	ZAMEDAN - - - - -	51	ACCCA - - - - -	20
HAMN AB - - - - -	40	PATRICK AFB - - - - -	46	ZARAGOZA- - - - -	51	BAKAR - - - - -	56
ISTANBUL - - - - -	40	PORT AU PRINCE- - - - -	46	ANTOFAGAST		KANU- - - - -	56
IZMIR - - - - -	40	RAMEY AFB - - - - -	46	ATKINSON- - - - -	51	KINSHASA/NDJILI - - - - -	56
KANO - - - - -	40	SAN JOSE- - - - -	46	RELEH - - - - -	51	LAGOS - - - - -	56
KARACHI - - - - -	40	SAN SALVADOR- - - - -	46	ROGOTA - - - - -	51	MIANEY- - - - -	56
KHARTOUM- - - - -	41	SANTO DOMINGO - - - - -	46	RUFNOS AIRFS- - - - -	51	RECIFE - - - - -	56
LUQA, MALTA - - - - -	41	SHAW AFB- - - - -	46	CHABUNCA- - - - -	51	RIO DE JANEIRO- - - - -	57
LUXOR - - - - -	41	SONDRESTROM - - - - -	46	LA PAZ- - - - -	51	ROBERTS FIELD - - - - -	57
MILDENHALL- - - - -	41	TONCONTIN AB- - - - -	46	LIMA - - - - -	51	ATHENS	
MOSCOW - - - - -	41	WESTOVER AFB- - - - -	47	MEDELLIN- - - - -	52	ABADAN- - - - -	17
NAIHORI - - - - -	41	WILLENSTAD- - - - -	47	PARAMARIBO- - - - -	52	ADANA - - - - -	22
NAPLES - - - - -	41	ANKARA		RIO DE JANEIRO- - - - -	52	ADDIS ABABA - - - - -	25
ORAN- - - - -	41	ARADAN- - - - -	17	SANTA CRUZ- - - - -	52	ADEN- - - - -	28
RHEIN MAIN- - - - -	42	ADANA - - - - -	21	SANTIAGO- - - - -	52	ALGER - - - - -	35
ROME - - - - -	42	ADDIS ABABA - - - - -	25	TALARA- - - - -	52	AMMAN - - - - -	39
STOCKHOLM - - - - -	42	ADEN- - - - -	28	ARGENTIA NS		ANKARA- - - - -	47
TEHRAN- - - - -	42	ALGER - - - - -	34	ANDREWS AFB - - - - -	42	AVIANO AB - - - - -	57
TORREJON- - - - -	42	AMMAN - - - - -	39	CHERRY PT MCAS- - - - -	52	BAGHDAD - - - - -	57
TUNIS - - - - -	42	ATHENS- - - - -	47	DOVER AFB - - - - -	52	BITBURG AB- - - - -	57
ZAMEDAN - - - - -	42	AVIANO AB - - - - -	47	EGLIN AFB - - - - -	52	BORDEAUX- - - - -	57
ZARAGOZA- - - - -	42	BAGHDAD - - - - -	47	FORT BENNING- - - - -	53	BRINDISI - - - - -	57
ANDREWS AFB		BITBURG AB- - - - -	47	FORT BRAGG/POPE - - - - -	53	CAIRO - - - - -	57
ALABAMA AFB - - - - -	29	BORDEAUX- - - - -	47	FORT FUSTIS - - - - -	53	CHATEAURoux - - - - -	57
ARGENTIA NS - - - - -	42	CAIRO - - - - -	47	FORT RUCKER - - - - -	53	CHAUMONT- - - - -	58
BARRANQUILLA- - - - -	43	CHATEAURoux - - - - -	48	FROBISHER - - - - -	53	DHAHRAN - - - - -	58
BRIDGEWATER- - - - -	43	CHAUMONT- - - - -	48	GOOSE AB- - - - -	53	DIYARRAKIR- - - - -	58
CHERRY PT MCAS- - - - -	43	DHAHRAN - - - - -	48	GUANTANAMO BAY- - - - -	53	HAMN AB - - - - -	58
CORPUS CHRISTI- - - - -	43	DIYARRAKIR- - - - -	48	HARMON AFB- - - - -	53	ISTANBUL- - - - -	58
EGLIN AFB - - - - -	43	HAMN AB - - - - -	48	HAVANA- - - - -	53	IZMIR - - - - -	58
ELLINGTON AFB - - - - -	43	ISTANBUL- - - - -	48	HOMESTEAD AFB - - - - -	54	KANO- - - - -	58
ENGLAND AFB - - - - -	43	IZMIR - - - - -	48	MUNTER AAF- - - - -	54	KHARTOUM- - - - -	58
		KARACHI - - - - -	48	JACKSONVILLE- - - - -	54	LISBON- - - - -	58

ATHENS (CONT.)		ATKINSON (CONT.)		BAGHDAD (CONT.)		BARRANQUILLA (CONT.)	
LUQA, MALTA	59	WILLENSTAD	64	CAIRO	68	NEW ORLEANS	74
LUXOR	59			CHAUMONT	68	PARAMARIBO	74
MILFENHALL	59	AVIANO AB		CHAMMAN	68	PATRICK AFB	74
MOSCOW	59	ABADAN	17	DIYARBAKIR	68	PORT AU PRINCE	74
NAPLES	59	ADANA	22	HAHN AB	69	RAMEY AFB	74
NIAIFY	59	ALGER	35	ISTANBUL	69	SAN JOSE	74
NICOSIA	59	AMMAN	39	IZMIR	69	SAN SALVADOR	74
ORAN	59	ANKARA	47	KARACHI	69	SANTA CRUZ	74
PORT LYAUTEY	59	ATHENS	57	KHARTOUM	69	SANTO DOMINGO	74
PRESTWICK	60	BAGHDAD	64	LUQA, MALTA	69	SHAW AFB	75
RHEIN MAIN	60	RITBURG AB	64	LUXOR	69	TALARA	75
ROME	60	NORDEAUX	64	MOSCOW	69	YONCONTIN AB	75
STOCKHOLM	60	RRINDISI	65	NAPLES	69	WESTOVER AFB	75
TEHRAN	60	CAIRO	65	NICOSIA	70	WILLENSTAD	75
TPL AVIV	60	CHATEAUBOX	65	RHEIN MAIN	70		
TORREJON	60	CHAUMONT	65	ROME	70	BELEM	
TRUMSO	60	DIYARBAKIR	65	STOCKHOLM	70	ALABOOK AFB	30
TUNIS	60	HAHN AB	65	TEHRAN	70	ANTOFAGAST	31
ZAMEDAN	61	ISTANBUL	65	TEL AVIV	70	ATKINSON	61
ZARAGOZA	61	IZMIR	65	TUNIS	70	BARRANQUILLA	70
		KEFLAVIK	65	ZAMEDAN	70	ROGOTA	75
		LAJES FIELD	66			BRIDGETOWN	75
		LAS PALMAS	66	BARRANQUILLA		LA PAZ	75
		LISBON	66	ALABOOK AFB	30	LIMA	75
		LUQA, MALTA	66	ANDREWS AFB	43	MEDELLIN	76
		LUXOR	66	ATKINSON	61	PARAMARIBO	76
		MILFENHALL	66	BELEM	70	PORT AU PRINCE	76
		MOSCOW	66	ROGOTA	71	RAMEY AFB	76
		NAPLES	66	BRIDGETOWN	71	RECIFE	76
		NICOSIA	66	CHERRY PT MCAS	71	RIO DE JANEIRO	76
		ORAN	67	CORPUS CHRISTI	71	SANTA CRUZ	76
		PORT LYAUTEY	67	DOVER AFB	71	SANTO DOMINGO	76
		PRESTWICK	67	EGLIN AFB	71	TALARA	76
		RHEIN MAIN	67	ELLINGTON AFB	71	WILLENSTAD	77
		ROME	67	ENGLAND AFB	71		
		STOCKHOLM	67	FORT BENNING	71	BITBURG AB	
		TEHRAN	67	FORT BRAGG/PDPE	72	ADANA	22
		TEL AVIV	67	FORT EUSTIS	72	ALGER	35
		TORREJON	67	FORT RUCKER	72	AMMAN	39
		TRUMSO	68	GUANTANAMO BAY	72	ANKARA	47
		TUNIS	68	GUAYAMA LA CITY	72	ATHENS	57
		ZARAGOZA	68	HAVANA	72	AVIANO AB	64
				WHELFIELD AFB	72	BAGHDAD	64
				HUNTER AFB	72	NORDEAUX	77
				JACKSONVILLE	72	RRINDISI	77
				KEY WEST	73	CAIRO	77
				KINGSTON	73	CHATEAUBOX	77
				LA PAZ	73	DIYARBAKIR	77
				LIMA	73	ISTANBUL	77
				MANAGUA	73	IZMIR	77
				MCQUIRE AFB	73	KEFLAVIK	77
				MEDELLIN	73	LAJES FIELD	78
				NEW CUMBERLAND	73	LAS PALMAS	78
						LISBON	78

RITBURG AB (CONT.)

LUQA, MALTA	78
LUXOR	78
MILDENHALL	78
MOSCOW	78
NAPLES	78
NARSARSSUAK	78
NICOSIA	79
ORAN	79
PORT LYAUTEY	79
PRESTWICK	79
ROME	79
SOMERSTROM	79
STOCKHOLM	79
TEL AVIV	79
TORREJON	79
TRONSO	80
TUNIS	80
ZARAGOZA	80

BOGOTA

ALBROOK AFB	30
ANTOFAGAST	51
ATKINSON	61
BARRANQUILLA	71
BELEM	75
BRIDGETOWN	80
CHERRY PT MCAS	80
CORPUS CHRISTI	80
EGLIN AFB	80
ELLINGTON AFB	80
ENGLAND AFB	80
FORT BENNING	81
FORT BRAGG/POPE	81
FORT RUCKER	81
GUANTANAMO BAY	81
GUAYAMA CITY	81
HAVANA	81
HOMESTEAD AFB	81
HUNTER AAF	81
JACKSONVILLE	81
KEY WEST	82
KINDLEY AFB	82
KINGSTON	82
LA PAZ	82
LIMA	82
MANAGUA	82
NEW ORLEANS	82
PARAMARIBO	82
PATRICK AFB	82
PORT AU PRINCE	91
RAMEY AFB	83
SAN JOSE	83
SAN SALVADOR	83
SANTA CRUZ	83

BOGOTA (CONT.)

SANTO DOMINGO	83
SHAW AFB	83
TALARA	83
TONCONTIN AB	83
WILLEMSTAD	84

BORDEAUX

ADANA	22
ALGER	35
AMMAN	39
ANKARA	47
ATHENS	57
AVIANO AB	65
BITBURG AB	77
BRINDISI	84
CAIRO	84
CHATEAURoux	84
CHAUMONT	84
DAKAR	84
DIYARBAKIR	84
HAMN AB	84
ISTANBUL	84
IZMIR	85
KEFLAVIK	85
LAJES FIELD	85
LAS PALMAS	85
LISBON	85
LUQA, MALTA	85
MILDENHALL	85
MOSCOW	85
NAPLES	85
NARSARSSUAK	86
NIAMEY	86
NICOSIA	86
ORAN	86
PORT LYAUTEY	86
PRESTWICK	86
RHEIN MAIN	86
ROME	86
STOCKHOLM	86
TEL AVIV	87
TORREJON	87
TRONSO	87
TUNIS	87
ZARAGOZA	87

BRIDGETOWN

ALBROOK AFB	30
ANDREWS AFB	43
ATKINSON	61
BARRANQUILLA	71
BELEM	75
BOGOTA	80
CHERRY PT MCAS	87

BRIDGETOWN (CONT.)

DOVER AFB	87
EGLIN AFB	87
FORT BENNING	87
FORT BRAGG/POPE	88
FORT EUSTIS	88
FORT RUCKER	88
GUANTANAMO BAY	88
GUAYAMA CITY	88
HAVANA	88
HOMESTEAD AFB	88
HUNTER AAF	88
JACKSONVILLE	88
KEY WEST	89
KINDLEY AFB	89
KINGSTON	89
LA PAZ	89
LIMA	89
MANAGUA	89
MCGUIRE AFB	89
MEDELLIN	89
NEW CUMBERLAND	89
NEW ORLEANS	90
PARAMARIBO	90
PATRICK AFB	90
PORT AU PRINCE	90
RAMEY AFB	90
RECIFE	90
SAN JOSE	90
SAN SALVADOR	90
SANTA CRUZ	90
SANTO DOMINGO	91
SHAW AFB	91
TALARA	91
TONCONTIN AB	91
WFOVER AFB	91
WILLEMSTAD	91

BRINDISI

ABADAN	17
ADANA	22
ADDIS ABABA	26
ADEN	28
ALGER	35
AMMAN	39
ANKARA	47
ATHENS	57
AVIANO AB	65
BAGHDAD	68
BITBURG AB	77
BORDEAUX	84
CAIRO	84
CHATEAURoux	84
CHAUMONT	84
DAMMAM	92
DIYARBAKIR	92
HAMN AB	92

BRINDISI (CONT.)

ISTANBUL	92
IZMIR	92
KANO	92
KEFLAVIK	92
KHARTOUM	92
LAS PALMAS	92
LISBON	93
LUQA, MALTA	93
LUXOR	93
MILDENHALL	93
MOSCOW	93
NAPLES	93
NIAMEY	93
NICOSIA	93
ORAN	93
PORT LYAUTEY	94
PRESTWICK	94
RHEIN MAIN	94
ROME	94
STOCKHOLM	94
TEHRAN	94
TEL AVIV	94
TORREJON	94
TRONSO	94
TUNIS	95
ZARAGOZA	95

BUENOS AIRES

ANTOFAGAST	51
CHABUNCA	95
LA PAZ	95
LIMA	95
RIO DE JANEIRO	95
SANTA CRUZ	95
SANTIAGO	95

CAIRO

ABADAN	18
ADANA	22
ADDIS ABABA	26
ADEN	28
ALGER	35
AMMAN	39
ANKARA	47
ATHENS	57
AVIANO AB	65
BAGHDAD	68
BITBURG AB	77
BORDEAUX	84
BRINDISI	91
CHATEAURoux	95
CHAUMONT	96
DAMMAM	96
DIYARBAKIR	96

CAIRO (CONT.)		CHATEAURoux (CONT.)		CHAUMONT (CONT.)		CORPUS CHRISTI (CONT.)	
HAHN AR	- 96	LAS PALMAS	- 100	TORREJON	- 104	BARRANQUILLA	- 71
ISTANBUL	- 96	LISBON	- 100	TROMSO	- 105	BOGOTA	- 80
IZMIR	- 96	LUGA, MALTA	- 100	TUNIS	- 105	CHERRY PT MCAS	- 105
KANO	- 96	LUXOR	- 100	ZARAGOZA	- 105	DOVER AFB	- 109
KARACHI	- 96	MILDENHALL	- 100			EGLIN AFB	- 109
KHARTOUM	- 96	MOSCOW	- 100	CHERRY PT MCAS		ELLINGTON AFB	- 109
LUGA, MALTA	- 97	NAPLES	- 101	ALABAMA AFB	- 30	ENGLAND AFB	- 109
LUXOR	- 97	NARSARSSUAK	- 101	ANDREWS AFB	- 43	FORT BENNING	- 109
MILDENHALL	- 97	NICOSIA	- 101	ARGENTIA NS	- 52	FORT BRAGG/POPE	- 110
MOSCOW	- 97	ORAN	- 101	ATKINSON	- 61	FORT EUSTIS	- 110
NATRONI	- 97	PORT LYAUTEY	- 101	BARRANQUILLA	- 71	FORT RUCKER	- 110
NAPLES	- 97	PRESTWICK	- 101	BOGOTA	- 80	GUANTANAMO BAY	- 110
NIAMEY	- 97	RHEIN MAIN	- 101	BRIDGEFORD	- 87	GUATEMALA CITY	- 110
NICOSIA	- 97	ROME	- 101	CORPUS CHRISTI	- 105	HAVANA	- 110
ORAN	- 97	STOCKHOLM	- 101	DOVER AFB	- 105	HOMESTEAD AFB	- 110
PORT LYAUTEY	- 98	TEL AVIV	- 102	EGLIN AFB	- 105	HUNTER AAF	- 110
RHEIN MAIN	- 98	TORREJON	- 102	ELLINGTON AFB	- 105	JACKSONVILLE	- 110
ROME	- 98	TROMSO	- 102	ENGLAND AFB	- 105	KEY WEST	- 111
STOCKHOLM	- 98	TUNIS	- 102	FORT BENNING	- 105	KINDLEY AFB	- 111
TFHRAN	- 98	ZARAGOZA	- 102	FORT EUSTIS	- 106	KINGSTON	- 111
TEL AVIV	- 98			FORT RUCKER	- 106	LORING AFB	- 111
TORREJON	- 98	CHAUMONT		FROBISHER	- 106	MANAGUA	- 111
TUNIS	- 98	ADANA	- 22	GONSF AR	- 106	MCGUIRE AFB	- 111
ZAHEDAN	- 98	ALGER	- 35	GUANTANAMO BAY	- 106	MEDELLIN	- 111
ZARAGOZA	- 98	AMMAN	- 40	GUATEMALA CITY	- 106	NEW CUMBERLAND	- 111
		ANKARA	- 48	HARMON AFB	- 106	NEW ORLEANS	- 111
		ATHENS	- 58	HAVANA	- 106	PATRICK AFB	- 112
CAPE TOWN		AVIANO AB	- 65	HOMESTEAD AFB	- 106	PORT AU PRINCE	- 112
ELISABETHVILLE	- 99	BAGHDAD	- 68	HUNTER AAF	- 107	RAHEY AFB	- 112
JOHANNESBURG	- 99	BORDEAUX	- 84	JACKSONVILLE	- 107	SAN JOSE	- 112
KINSHASA/NOJILI	- 99	BRINDISI	- 91	KEY WEST	- 107	SAN SALVADOR	- 112
		CAIRO	- 96	KINDLEY AFB	- 107	SANTO DOMINGO	- 112
CHABUNCA		CHATEAURoux	- 99	KINGSTON	- 107	SHAW AFB	- 112
ANTOFAGAST	- 51	DIYARBAKIR	- 102	LORING AFB	- 107	TONCONTIN AB	- 112
BUENOS AIRES	- 95	ISTANBUL	- 102	MANAGUA	- 107	WESTOVER AFB	- 112
SANTIAGO	- 99	IZMIR	- 102	MCGUIRE AFB	- 107	WILLEMSTAD	- 113
		KEFLAVIK	- 102	MEDELLIN	- 107		
CHATEAURoux		LAJES FIELD	- 103	NARSARSSUAK	- 108	DAKAR	
ADANA	- 22	LAS PALMAS	- 103	NEW CUMBERLAND	- 108	ACCRA	- 20
ALGER	- 35	LISBON	- 103	NEW ORLEANS	- 108	ALGER	- 35
AMMAN	- 40	LUGA, MALTA	- 103	PATRICK AFB	- 108	ASCENSION ISLAND	- 56
ANKARA	- 48	LUXOR	- 103	PORT AU PRINCE	- 108	BORDEAUX	- 84
ATHENS	- 57	MILDENHALL	- 103	RAHEY AFB	- 108	KANO	- 113
AVIANO AB	- 65	MOSCOW	- 103	SAN JOSE	- 108	LAGOS	- 113
BITBURG AB	- 77	NAPLES	- 103	SAN SALVADOR	- 108	LAJES FIELD	- 113
BORDEAUX	- 84	NARSARSSUAK	- 103	SANTO DOMINGO	- 108	LAS PALMAS	- 113
BRINDISI	- 91	NICOSIA	- 104	SHAW AFB	- 109	LISBON	- 113
CAIRO	- 95	ORAN	- 104	TONCONTIN AB	- 109	NIAMEY	- 113
CHAUMONT	- 99	PORT LYAUTEY	- 104	WESTOVER AFB	- 109	ORAN	- 113
DIYARBAKIR	- 99	PRESTWICK	- 104	WILLEMSTAD	- 109	PORT LYAUTEY	- 113
HAHN AR	- 99	RHEIN MAIN	- 104			RECIFE	- 114
ISTANBUL	- 99	ROME	- 104	CORPUS CHRISTI		ROBERTS FIELD	- 114
IZMIR	- 100	STOCKHOLM	- 104	ALABAMA AFB	- 30	TORREJON	- 114
KEFLAVIK	- 100	TEL AVIV	- 104	ANDREWS AFB	- 43	TUNIS	- 114
LAJES FIELD	- 100						

DAKAR (CONT.)

ZARAGOZA-	-114
DHAMRAN	
ABADAN-	18
ADANA-	23
ADDIS ABABA-	26
ADEN-	28
AMMAN-	40
ANKARA-	48
ATHENS-	58
BAGHDAD-	68
BRINDISI-	92
CAIRO-	96
DIYARBAKIR-	-114
ISTANBUL-	-114
IZMIR-	-114
KARACHI-	-114
KHARTOUM-	-115
LUQA, MALTA-	-115
LUXOR-	-115
MOSCOW-	-115
NATRONI-	-115
NAPLES-	-115
NICOSIA-	-115
TEHRAN-	-115
TEL AVIV-	-115
ZAHEDAN-	-116

DIYARBAKIR

ABADAN-	18
ADANA-	23
ADDIS ABABA-	26
ADEN-	28
ALGER-	36
AMMAN-	40
ANKARA-	48
ATHENS-	58
AVIANO AB-	65
BAGHDAD-	68
BITBURG AB-	77
BORDEAUX-	84
BRINDISI-	92
CAIRO-	96
CHATEAURoux-	99
CHAUMONT-	-102
DHAMRAN-	-114
HAHN AB-	-116
ISTANBUL-	-116
IZMIR-	-116
KARACHI-	-116
KHARTOUM-	-116
LUQA, MALTA-	-116
LUXOR-	-116
MILDENHALL-	-116

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NAPLES-	-117
NICOSIA-	-117
ORAN-	-117
RHEIN MAIN-	-117
ROME-	-117
STOCKHOLM-	-117
TEHRAN-	-117
TEL AVIV-	-117
TUNIS-	-118
ZAHEDAN-	-118
ZARAGOZA-	-118

DOVER AFB

ALBROOK AFB-	30
ARGENTIA NS-	52
BARRANQUILLA-	71
BRIDGETOWN-	87
CHERRY PT MCAS-	-105
CORPUS CHRISTI-	-109
EGLIN AFB-	-118
ELLINGTON AFB-	-118
ENGLAND AFB-	-118
FORT BENNING-	-118
FORT BRAGG/POPE-	-118
FORT RUCKER-	-118
FROBISHER-	-119
GOOSE AB-	-119
GUANTANAMO BAY-	-119
GUATAMALA CITY-	-119
HARMON AFB-	-119
HAVANA-	-119
HOMESTEAD AFB-	-119
HUNTER AAF-	-119
JACKSONVILLE-	-119
KEY WEST-	-120
KINDLEY AFB-	-120
KINGSTON-	-120
LORING AFB-	-120
MANAGUA-	-120
MEDELLIN-	-120
NARSARSSUAK-	-120
NEW ORLEANS-	-120
PATRICK AFB-	-120
PORT AU PRINCE-	-121
RAHEY AFB-	-121
SAN JOSE-	-121
SAN SALVADOR-	-121
SANTO DOMINGO-	-121
SHAW AFB-	-121
SONDRESTROM-	-121
TONCONTIN AB-	-121
WESTOVER AFB-	-121

EGLIN AFB

ALBROOK AFB-	30
ANDREWS AFB-	43
ARGENTIA NS-	52
BARRANQUILLA-	71
BOGOTA-	80
BRIDGETOWN-	87
CHERRY PT MCAS-	-105
CORPUS CHRISTI-	-109
DOVER AFB-	-118
ELLINGTON AFB-	-122
ENGLAND AFB-	-122
FORT BRAGG/POPE-	-122
FORT EUSTIS-	-122
GOOSE AB-	-122
GUANTANAMO BAY-	-122
GUATAMALA CITY-	-122
HARMON AFB-	-122
HAVANA-	-123
HOMESTEAD AFB-	-123
HUNTER AAF-	-123
JACKSONVILLE-	-123
KEY WEST-	-123
KINDLEY AFB-	-123
KINGSTON-	-123
LORING AFB-	-123
MANAGUA-	-123
MCGUIRE AFB-	-124
MEDELLIN-	-124
NEW CUMBERLAND-	-124
NEW ORLEANS-	-124
PATRICK AFB-	-124
PORT AU PRINCE-	-124
RAHEY AFB-	-124
SAN JOSE-	-124
SAN SALVADOR-	-124
SANTO DOMINGO-	-125
SHAW AFB-	-125
TONCONTIN AB-	-125
WESTOVER AFB-	-125
WILLEMSTAD-	-125

ELISABETHVILLE

ACCRA-	20
ADDIS ABABA-	26
ADEN-	28
CAPE TOWN-	99
JOHANNESBURG-	-125
KANO-	-125
KHARTOUM-	-125
KINSHASA/NOJILI-	-125
LAGOS-	-126
MAURITIUS ISLAND-	-126
NATRONI-	-126

ELLINGTON AFB

ALBROOK AFB-	31
ANDREWS AFB-	43
BARRANQUILLA-	71
BOGOTA-	80
CHERRY PT MCAS-	-105
CORPUS CHRISTI-	-109
DOVER AFB-	-118
EGLIN AFB-	-122
ENGLAND AFB-	-126
FORT BENNING-	-126
FORT BRAGG/POPE-	-126
FORT EUSTIS-	-126
FORT RUCKER-	-126
GUANTANAMO BAY-	-126
GUATAMALA CITY-	-127
HAVANA-	-127
HOMESTEAD AFB-	-127
HUNTER AAF-	-127
JACKSONVILLE-	-127
KEY WEST-	-127
KINDLEY AFB-	-127
KINGSTON-	-127
LORING AFB-	-127
MANAGUA-	-128
MCGUIRE AFB-	-128
MEDELLIN-	-128
NEW CUMBERLAND-	-128
NEW ORLEANS-	-128
PATRICK AFB-	-128
PORT AU PRINCE-	-128
RAHEY AFB-	-128
SAN JOSE-	-128
SAN SALVADOR-	-129
SANTO DOMINGO-	-129
SHAW AFB-	-129
TONCONTIN AB-	-129
WESTOVER AFB-	-129
WILLEMSTAD-	-129

ENGLAND AFB

ALBROOK AFB-	31
ANDREWS AFB-	43
BARRANQUILLA-	71
BOGOTA-	80
CHERRY PT MCAS-	-105
CORPUS CHRISTI-	-109
DOVER AFB-	-118
EGLIN AFB-	-122
ELLINGTON AFB-	-126
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FORT BRAGG/POPE-	-129
FORT EUSTIS-	-129
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 HARMON AFB- - - -130
 HAVANA- - - -130
 HOMESTEAD AFB- - -130
 HUNTER AAF- - - -130
 JACKSONVILLE- - -130
 KEY WEST- - - -131
 KINDLEY AFB- - - -131
 KINGSTON- - - -131
 LORING AFB- - - -131
 MANAGUA- - - -131
 MCGUIRE AFB- - - -131
 MEDELLIN- - - -131
 NEW CUMBERLAND- - -131
 NEW ORLEANS- - - -131
 PATRICK AFB- - - -132
 PORT AU PRINCE- - -132
 RAMEY AFB- - - -132
 SAN JOSE- - - -132
 SAN SALVADOR- - -132
 SANTO DOMINGO- - -132
 SHAW AFB- - - -132
 TONCONTIN AB- - -132
 WESTOVER AFB- - -132
 WILLEMSTAD- - - -133

FORT BENNING

ALBROOK AFB- - - - 31
 ANDREWS AFB- - - - 43
 ARGENTIA NS- - - - 53
 BARRANQUILLA- - - 71
 BOGOTA- - - - 81
 BRIDGETOWN- - - - 87
 CHERRY PT MCAS- - -105
 CORPUS CHRISTI- - -109
 DOVER AFB- - - -118
 ELLINGTON AFB- - -126
 ENGLAND AFB- - - -129
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 FORT EUSTIS- - - -133
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 GOOSE AB- - - -133
 GUANTANAMO BAY- - -133
 GUAYAMAALA CITY- - -133
 HARMON AFB- - - -133
 HAVANA- - - -133
 HOMESTEAD AFB- - -134
 HUNTER AAF- - - -134
 JACKSONVILLE- - -134
 KEY WEST- - - -134
 KINDLEY AFB- - - -134
 KINGSTON- - - -134
 LORING AFB- - - -134

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MANAGUA- - - -134
 MCGUIRE AFB- - - -134
 MEDELLIN- - - -135
 NEW CUMBERLAND- - -135
 NEW ORLEANS- - - -135
 PATRICK AFB- - - -135
 PORT AU PRINCE- - -135
 RAMEY AFB- - - -135
 SAN JOSE- - - -135
 SAN SALVADOR- - -135
 SANTO DOMINGO- - -135
 SHAW AFB- - - -136
 TONCONTIN AB- - -136
 WESTOVER AFB- - -136
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FORT BRAGG/POPE

ALBROOK AFB- - - - 31
 ANDREWS AFB- - - - 43
 ARGENTIA NS- - - - 53
 BARRANQUILLA- - - 72
 BOGOTA- - - - 81
 BRIDGETOWN- - - - 88
 CORPUS CHRISTI- - -110
 DOVER AFB- - - -118
 EGLIN AFB- - - -122
 ELLINGTON AFB- - -126
 ENGLAND AFB- - - -129
 FORT BENNING- - - -133
 FORT EUSTIS- - - -136
 FORT RUCKER- - - -136
 FROMISHER- - - -136
 GOOSE AB- - - -136
 GUANTANAMO BAY- - -136
 GUAYAMAALA CITY- - -137
 HARMON AFB- - - -137
 HAVANA- - - -137
 HOMESTEAD AFB- - -137
 HUNTER AAF- - - -137
 JACKSONVILLE- - -137
 KEY WEST- - - -137
 KINDLEY AFB- - - -137
 KINGSTON- - - -137
 LORING AFB- - - -138
 MANAGUA- - - -138
 MCGUIRE AFB- - - -138
 MEDELLIN- - - -138
 NEW CUMBERLAND- - -138
 NEW ORLEANS- - - -138
 PATRICK AFB- - - -138
 PORT AU PRINCE- - -138
 RAMEY AFB- - - -138
 SAN JOSE- - - -139
 SAN SALVADOR- - -139

FORT BRAGG/POPE (CONT.)

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 TONCONTIN AB- - - -139
 WESTOVER AFB- - - -139
 WILLEMSTAD- - - -139

FORT EUSTIS

ALBROOK AFB- - - - 31
 ARGENTIA NS- - - - 53
 BARRANQUILLA- - - 72
 BRIDGETOWN- - - - 88
 CHERRY PT MCAS- - -106
 CORPUS CHRISTI- - -110
 EGLIN AFB- - - -122
 ELLINGTON AFB- - -126
 ENGLAND AFB- - - -129
 FORT BENNING- - - -133
 FORT BRAGG/POPE- - -136
 FORT RUCKER- - - -139
 FROMISHER- - - -139
 GOOSE AB- - - -139
 GUANTANAMO BAY- - -140
 GUAYAMAALA CITY- - -140
 HARMON AFB- - - -140
 HAVANA- - - -140
 HOMESTEAD AFB- - -140
 HUNTER AAF- - - -140
 JACKSONVILLE- - -140
 KEY WEST- - - -140
 KINDLEY AFB- - - -140
 KINGSTON- - - -141
 LORING AFB- - - -141
 MANAGUA- - - -141
 MEDELLIN- - - -141
 NARSARSSUAK- - - -141
 NEW ORLEANS- - - -141
 PATRICK AFB- - - -141
 PORT AU PRINCE- - -141
 RAMEY AFB- - - -141
 SAN JOSE- - - -142
 SAN SALVADOR- - -142
 SANTO DOMINGO- - -142
 SHAW AFB- - - -142
 SONDRESTROM- - - -142
 TONCONTIN AB- - - -142
 WESTOVER AFB- - - -142
 WILLEMSTAD- - - -142

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ALBROOK AFB- - - - 31
 ANDREWS AFB- - - - 44
 ARGENTIA NS- - - - 53
 BARRANQUILLA- - - 72
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 DOVER AFB- - - -118
 ELLINGTON AFB- - -126
 ENGLAND AFB- - - -130
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 FORT EUSTIS- - - -139
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 GUAYAMAALA CITY- - -143
 HARMON AFB- - - -143
 HAVANA- - - -143
 HOMESTEAD AFB- - -143
 HUNTER AAF- - - -143
 JACKSONVILLE- - -143
 KEY WEST- - - -143
 KINDLEY AFB- - - -143
 KINGSTON- - - -144
 LORING AFB- - - -144
 MANAGUA- - - -144
 MCGUIRE AFB- - - -144
 MEDELLIN- - - -144
 NEW CUMBERLAND- - -144
 NEW ORLEANS- - - -144
 PATRICK AFB- - - -144
 PORT AU PRINCE- - -144
 RAMEY AFB- - - -145
 SAN JOSE- - - -145
 SAN SALVADOR- - -145
 SANTO DOMINGO- - -145
 SHAW AFB- - - -145
 TONCONTIN AB- - -145
 WESTOVER AFB- - -145
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ANDREWS AFB- - - - 44
 ARGENTIA NS- - - - 53
 CHERRY PT MCAS- - -106
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 GOOSE AB- - - -145
 HARMON AFB- - - -146
 HUNTER AAF- - - -146
 KEFLAVIK- - - -146
 KINDLEY AFB- - - -146
 LORING AFB- - - -146
 MCGUIRE AFB- - - -146
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 CHERRY PT MCAS - - - - -106
 DOWEN AFB - - - - -119
 EGLIN AFB - - - - -122
 ENGLAND AFB - - - - -130
 FORT BENNING - - - - -133
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 HONFSTEAD AFB - - - - -147
 HUNTER AAF - - - - -147
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 KEY WEST - - - - -148
 KINDLEY AFB - - - - -148
 LAJES FIELD - - - - -148
 LORING AFB - - - - -148
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 NEW CUMBERLAND - - - - -148
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 PATRICK AFB - - - - -148
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 SNOWSTORM - - - - -148
 THULE - - - - -148
 WESTOVER AFB - - - - -148

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 HUNTER AAF - - - - -153
 JACKSONVILLE - - - - -153
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 HAVANA - - - - -149
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 HUNTER AAF - - - - -150
 JACKSONVILLE - - - - -150
 KEY WEST - - - - -150
 KINDLEY AFB - - - - -150
 KINGSTON - - - - -150
 LIMA - - - - -150
 LORING AFB - - - - -150
 MANAGUA - - - - -150
 MCGUIRE AFB - - - - -151
 MEDELLIN - - - - -151
 NEW CUMBERLAND - - - - -151
 NEW ORLEANS - - - - -151
 PARAMARIBO - - - - -151
 PATRICK AFB - - - - -151
 PORT AU PRINCE - - - - -151
 RAMEY AFB - - - - -151
 SAN JOSE - - - - -151
 SAN SALVADOR - - - - -152
 SANTO DOMINGO - - - - -152
 SHAW AFB - - - - -152
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 ATKINSON - - - - -61
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 BRIDGETOWN - - - - -88
 CHERRY PT MCAS - - - - -106
 CORPUS CHRISTI - - - - -110
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 NEW ORLEANS - - - - -154
 PATRICK AFB - - - - -154
 PORT AU PRINCE - - - - -154
 RAMEY AFB - - - - -154
 SAN JOSE - - - - -154
 SANTO DOMINGO - - - - -154
 SHAW AFB - - - - -154
 TALARA - - - - -154
 TONCONTIN AB - - - - -155
 WESTOVER AFB - - - - -155
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 AVIANO AB - - - - -65
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 KINDLEY AFB - - - - -148
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 LORING AFB - - - - -148
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 CORPUS CHRISTI - - - - -110
 DOWEN AFB - - - - -119
 EGLIN AFB - - - - -122
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FORT EUSTIS	-	- 140	KIMLEY AFB	-	- 163	NEW ORLEANS	-	- 166	ADANA	-	- 20
FORT RUCKER	-	- 143	KINGSTON	-	- 163	PATRICK AFB	-	- 166	ADDIS ABABA	-	- 26
GUANTANAMO BAY	-	- 149	LORING AFB	-	- 163	PORT AU PRINCE	-	- 166	ADEN	-	- 28
GUAYAMA CITY	-	- 152	MANAGUA	-	- 163	RAHEV AFB	-	- 166	ALGER	-	- 34
HARMON AFB	-	- 158	MCQUIRE AFB	-	- 163	SAN JOSE	-	- 166	AMMAN	-	- 40
HOMESTEAD AFB	-	- 160	MCNEILL	-	- 163	SAN SALVADOR	-	- 166	ANKARA	-	- 48
HUNTER AAF	-	- 160	NEW CUMBERLAND	-	- 163	SANTO DOMINGO	-	- 167	ATHENS	-	- 50
JACKSONVILLE	-	- 160	NEW ORLEANS	-	- 164	TONCONTIN AR	-	- 167	AVIANO AB	-	- 65
KIMLEY AFB	-	- 160	PARAMARION	-	- 164	WESTOVER AFB	-	- 167	BAGHDAD	-	- 69
KINGSTON	-	- 160	PATRICK AFB	-	- 164	WILLEMSTAD	-	- 167	BITBURG AR	-	- 77
LORING AFB	-	- 161	PORT AU PRINCE	-	- 164				BORDEAUX	-	- 85
MANAGUA	-	- 161	RAHEV AFB	-	- 164	ISTANBUL			BRINDISI	-	- 92
MCQUIRE AFB	-	- 161	SAN JOSE	-	- 164	ABADAN	-	- 10	CAIRO	-	- 96
MCNEILL	-	- 161	SAN SALVADOR	-	- 164	ADANA	-	- 23	CHATEAUBOX	-	- 100
NEW CUMBERLAND	-	- 161	SANTO DOMINGO	-	- 164	ADDIS ABABA	-	- 26	CHAUMONT	-	- 102
NEW ORLEANS	-	- 161	SMAN AFB	-	- 164	AFEN	-	- 28	CHAMMAN	-	- 114
PARAMARION	-	- 161	TALARA	-	- 164	ALGER	-	- 36	CHATEAUBOX	-	- 116
PATRICK AFB	-	- 161	TONCONTIN AR	-	- 164	AMMAN	-	- 40	CHAMMAN	-	- 116
PORT AU PRINCE	-	- 161	WESTOVER AFB	-	- 164	ANKARA	-	- 48	CHATEAUBOX	-	- 116
RAHEV AFB	-	- 162	WILLEMSTAD	-	- 164	ATHENS	-	- 50	CHATEAUBOX	-	- 116
SAN JOSE	-	- 162				AVIANO AB	-	- 65	CHATEAUBOX	-	- 116
SAN SALVADOR	-	- 162	HUNTER AAF			BAGHDAD	-	- 69	CHATEAUBOX	-	- 116
SANTO DOMINGO	-	- 162	ALABAMA AFB	-	- 32	BITBURG AR	-	- 77	CHATEAUBOX	-	- 116
SMAN AFB	-	- 162	ANDRUS AFB	-	- 44	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
TALARA	-	- 162	ARGENTIA MS	-	- 54	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
TONCONTIN AR	-	- 162	ATKINSON	-	- 62	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
WESTOVER AFB	-	- 162	BARRANQUILLA	-	- 72	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
WILLEMSTAD	-	- 162	BOGOTA	-	- 81	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
			BRIDGETOWN	-	- 88	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
HOMESTEAD AFB			CHERRY PT MCAS	-	- 107	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
ALABAMA AFB	-	- 32	CORPUS CHRISTI	-	- 110	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
ANDRUS AFB	-	- 44	HUNTER AAF	-	- 119	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
ARGENTIA MS	-	- 54	EGLIN AFB	-	- 123	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
ATKINSON	-	- 62	FLLINGTON AFB	-	- 127	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
BARRANQUILLA	-	- 72	EWING AFB	-	- 130	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
BOGOTA	-	- 81	FORT BENNING	-	- 134	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
BRIDGETOWN	-	- 88	FORT BRAGG/POPE	-	- 137	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
CHERRY PT MCAS	-	- 107	FORT EUSTIS	-	- 140	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
CORPUS CHRISTI	-	- 110	FORT RUCKER	-	- 143	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
HUNTER AAF	-	- 119	FRANKLIN	-	- 144	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
EGLIN AFB	-	- 123	GUNSE AB	-	- 147	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
FLLINGTON AFB	-	- 127	GUANTANAMO BAY	-	- 150	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
EWING AFB	-	- 130	GUAYAMA CITY	-	- 153	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
FORT BENNING	-	- 134	HARMON AFB	-	- 158	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
FORT BRAGG/POPE	-	- 137	HAVANA	-	- 160	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
FORT EUSTIS	-	- 140	HOMESTEAD AFB	-	- 163	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
FORT RUCKER	-	- 143	KEV WEST	-	- 164	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
GUNSE AB	-	- 147	KIMLEY AFB	-	- 164	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
GUANTANAMO BAY	-	- 150	KINGSTON	-	- 164	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
GUAYAMA CITY	-	- 152	LORING AFB	-	- 164	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
HARMON AFB	-	- 158	MANAGUA	-	- 164	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
HAVANA	-	- 160	MCQUIRE AFB	-	- 164	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
HUNTER AAF	-	- 160	MCNEILL	-	- 164	CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
						CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
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						CHATEAUBOX	-	- 84	CHATEAUBOX	-	- 116
						CHATEAUBOX	-	- 84	CHATEAUBOX		

JACKSONVILLE (CONT.)

FGLIN AFB	-123
ELLINGTON AFB	-127
ENGLAND AFB	-130
FORT BENNING	-134
FORT BRAGG/POPE	-137
FORT EUSTIS	-140
FORT RUCKER	-143
GOOSE AB	-147
GUANTANAMO BAY	-150
GUAYMALA CITY	-153
HARMON AFB	-158
HAYANA	-160
HONESTYAN AFB	-163
KEY WEST	-172
KINLEY AFB	-172
KINGSTON	-172
LORING AFB	-172
MANAGUA	-172
MCQUIRE AFB	-172
MCDELLIN	-173
NEW CUMBERLAND	-173
NEW ORLEANS	-173
PORT AU PRINCE	-173
RAMEY AFB	-173
SAN JOSE	-173
SAN SALVADOR	-173
SANTO DOMINGO	-173
SHAW AFB	-173
TONCONTIN AB	-174
WESTOVER AFB	-174
WILLEMSTAD	-174

JMWANNESBURG

CAPE TOWN	-99
ELIZABETHVILLE	-124
KINSHASA/NDJILI	-174
MAURITIUS ISLAND	-174
NAIROBI	-174

KAND

ACRA	-20
ADDIS ABABA	-26
ALGER	-36
AMMAN	-40
ASCENSION ISLAND	-56
ATHENS	-58
BRINDISI	-92
CAIRO	-94
DAKAR	-113
ELIZABETHVILLE	-124
IZMIR	-169
KHARTOUM	-174
KINSHASA/NDJILI	-174
LAGOS	-174

KAND (CONT.)

LAS PALMAS	-175
LISBON	-175
LUGA, MALTA	-175
LUXOR	-175
NAIROBI	-175
NAPLES	-175
NIAMEY	-175
NICOSIA	-175
ORAN	-175
PORT LYAUTEY	-176
ROMFATS FIELD	-176
ROME	-176
TFL AVIV	-176
TORREJON	-176
TUNIS	-176
ZARAGOZA	-176

KARACHI

ABADAN	-18
ADANA	-23
ADDIS ABABA	-26
ADEN	-29
AMMAN	-40
ANKARA	-48
BAGHDAD	-69
CAIRO	-94
OHAMMAN	-114
DIYARBAKIR	-116
LUXOR	-176
NICOSIA	-176
TEHRAN	-177
TFL AVIV	-177
ZAMEKAN	-177

KEFLAVIK

ALGER	-36
ARGENTIA NS	-54
AVIANO AB	-65
RITBURG AB	-77
MORDEAUX	-85
BRINDISI	-92
CHATEAUBRIANT	-100
CHAUMONT	-102
FRONISHER	-146
GOOSE AB	-148
HANN AB	-154
HARMON AFB	-158
LAJES FIELD	-177
LISBON	-177
LORING AFB	-177
MILDENHALL	-177
MOSCOW	-177
NAPLES	-177
NARSARSSUAQ	-178

KEFLAVIK (CONT.)

ORAN	-178
PORT LYAUTEY	-178
PRESTWICK	-178
RHEIN MAIN	-178
ROME	-178
SONDRESTROM	-178
STOCKHOLM	-178
THULE	-178
TORREJON	-179
TROMSO	-179
ZARAGOZA	-179

KEY WEST

ALABAMA AFB	-32
ANDREWS AFB	-45
ARGENTIA NS	-54
ATKINSON	-62
BARRANQUILLA	-73
BOGOTA	-82
BRIDGETOWN	-89
CHERRY PT MEAS	-107
CORPUS CHRISTI	-111
DOVER AFB	-120
FGLIN AFB	-123
ELLINGTON AFB	-127
ENGLAND AFB	-131
FORT BENNING	-134
FORT BRAGG/POPE	-137
FORT EUSTIS	-140
FORT RUCKER	-143
GOOSE AB	-148
GUANTANAMO BAY	-150
GUAYMALA CITY	-153
HARMON AFB	-158
HUMTER AFB	-165
JACKSONVILLE	-172
KINLEY AFB	-174
KINGSTON	-179
LORING AFB	-179
MANAGUA	-179
MCQUIRE AFB	-179
MCDELLIN	-179
NEW CUMBERLAND	-180
NEW ORLEANS	-180
PARAMARIBO	-180
PATRICK AFB	-180
PORT AU PRINCE	-180
RAMEY AFB	-180
SAN JOSE	-180
SAN SALVADOR	-180
SANTO DOMINGO	-180
SHAW AFB	-181
TALARA	-181
TONCONTIN AB	-181

KEY WEST (CONT.)

WESTOVER AFB	-181
WILLEMSTAD	-181

KHARTOUM

ABADAN	-18
ADANA	-23
ADDIS ABABA	-27
ADEN	-29
AMMAN	-41
ANKARA	-48
ATHENS	-58
BAGHDAD	-69
BRINDISI	-92
CAIRO	-96
OHAMMAN	-115
DIYARBAKIR	-116
ELIZABETHVILLE	-125
ISTANBUL	-167
IZMIR	-170
KAND	-174
KINSHASA/NDJILI	-181
LAGOS	-181
LUGA, MALTA	-181
LUXOR	-181
NAIROBI	-182
NAPLES	-182
NIAMEY	-182
NICOSIA	-182
ROME	-182
TEHRAN	-182
TFL AVIV	-182
TUNIS	-182
ZAMEKAN	-182

KINLEY AFB

ALABAMA AFB	-32
ANDREWS AFB	-45
ARGENTIA NS	-54
ATKINSON	-62
BARRANQUILLA	-73
BOGOTA	-82
BRIDGETOWN	-89
CHERRY PT MEAS	-107
CORPUS CHRISTI	-111
DOVER AFB	-120
FGLIN AFB	-123
ELLINGTON AFB	-127
ENGLAND AFB	-131
FORT BENNING	-134
FORT BRAGG/POPE	-137
FORT EUSTIS	-140
FORT RUCKER	-143
FRONISHER	-146
GOOSE AB	-148

KINDLEY AFB (CONT.)	KINGSTON (CONT.)	LAJES FIELD (CONT.)	LAS PALMAS (CONT.)
GUANTANAMO BAY - - - -150	LIMA - - - - -105	ARGENTIA MS - - - - 54	TORRE JON - - - - -191
GUATEMALA CITY - - - -193	LORING AFB - - - -105	AVIANO AB - - - - 66	TUNIS - - - - -191
HARMON AFB - - - -150	MANAGUA - - - -105	BITUNG AB - - - - 70	ZARAGOZA - - - - -191
HAVANA - - - - -160	MC GUIRE AFB - - - -105	MORDEAUX - - - - 85	
HONOLULU AFB - - - -163	MEDELLIN - - - -105	CHATELAINOUX - - - -100	LA PAZ
HUNTER AAF - - - -165	NEW CUMBERLAND - - - -105	CHAUMONT - - - -103	ALORON AFB - - - - 32
JACKSONVILLE - - - -172	NEW ORLEANS - - - -105	DAKAR - - - -113	ANTIPASAST - - - - 91
KEY WEST - - - -179	PARAMARIBO - - - -106	GENESE AB - - - -148	ATKINSON - - - - 62
KINGSTON - - - -183	PATRICK AFB - - - -106	HANN AB - - - -155	BARRANQUILLA - - - - 73
LAJES FIELD - - - -183	PORT AU PRINCE - - - -106	HARMON AFB - - - -158	BELEN - - - - 75
LORING AFB - - - -193	RAMFV AFB - - - -106	HEFLAVIK - - - -177	BOGOTA - - - - 82
MANAGUA - - - -103	SAN JOSE - - - -106	KIMBLEY AFB - - - -183	BRIGSTOWN - - - - 89
MC GUIRE AFB - - - -103	SAN SALVADOR - - - -106	LAS PALMAS - - - -188	CHIFFRYS AIRFS - - - - 95
MEDELLIN - - - -103	SANTO DOMINGO - - - -106	LISBON - - - -188	LIMA - - - -192
MARSARSSUAK - - - -103	SHAW AFB - - - -106	LORING AFB - - - -188	MEDELLIN - - - -192
NEW CUMBERLAND - - - -103	TALARA - - - -106	LINJA, MALTA - - - -189	PARAMARIBO - - - -192
NEW ORLEANS - - - -103	TOMCONTIN AB - - - -187	MILDMHALL - - - -189	RIN DE JAMEIRO - - - -192
PARAMARIBO - - - -104	WESTOVER AFB - - - -187	NAPLES - - - -189	SAN JOSE - - - -192
PATRICK AFB - - - -104	WILLENSTAD - - - -187	NARSARSSUAK - - - -189	SANTA CRUZ - - - -192
PORT AU PRINCE - - - -104		ORAN - - - -189	SANTIAGO - - - -192
RAMFV AFB - - - -104	KINSHASA/NDJILI	PORT LYAUTEY - - - -189	TALARA - - - -192
SAN JOSE - - - -104	ACCRA - - - - - 20	PRESTWICK - - - -189	WILLENSTAD - - - -192
SAN SALVADOR - - - -104	ADDIS ABABA - - - - 27	RAFIN MAIN - - - -189	
SANTO DOMINGO - - - -104	ASCENSION ISLAND - - - 56	ROME - - - -189	LIMA
SHAW AFB - - - -104	CAPE TOWN - - - - 99	SCHWETSTROM - - - -190	ALORON AFB - - - - 32
TOMCONTIN AB - - - -104	ELISABETHVILLE - - -125	TORRE JON - - - -190	ANTIPASAST - - - - 91
WESTOVN AFB - - - -105	JOHANNESBURG - - -174	TUNIS - - - -190	ATKINSON - - - - 62
WILLENSTAD - - - -105	KANO - - - -174	ZARAGOZA - - - -190	BARRANQUILLA - - - - 73
	KHARTOUM - - - -191		BELEN - - - - 75
KINGSTON	LAGOS - - - -187	LAS PALMAS	BOGOTA - - - - 82
ALORON AFB - - - - 32	NARROI - - - -187	ACCRA - - - - - 20	BRIGSTOWN - - - - 89
ANDREWS AFB - - - - 45	NIAMEY - - - -187	ALGER - - - - - 36	CHIFFRYS AIRFS - - - - 95
ATKINSON - - - - 62	ORFETS FIELD - - - -187	AVIANO AB - - - - 66	GUANTANAMO BAY - - - -190
BARRANQUILLA - - - - 73		BITUNG AB - - - - 70	GUATEMALA CITY - - - -193
BOGOTA - - - - 82	LAGOS	BRINDISI - - - - 92	KINGSTON - - - -193
BRIGSTOWN - - - - 89	ACCRA - - - - - 20	CHATELAINOUX - - - -188	LA PAZ - - - -192
CHERRY PT MCAS - - - -107	ALGER - - - - - 36	CHAUMONT - - - -188	MANAGUA - - - -193
COMBUS CHRISTI - - - -111	ASCENSION ISLAND - - - 56	DAKAR - - - -113	MEDELLIN - - - -193
DWYER AFB - - - -120	DAKAR - - - -113	HANN AB - - - -155	PARAMARIBO - - - -193
EGLIN AFB - - - -123	ELISABETHVILLE - - -126	KANO - - - -174	PORT AU PRINCE - - - -193
ELLINGTON AFB - - - -127	KANO - - - -174	LAGOS - - - -187	RAMFV AFB - - - -193
ENGLAND AFB - - - -131	KHARTOUM - - - -181	LAJES FIELD - - - -188	SAN JOSE - - - -193
PORT GUNNING - - - -134	KINSHASA/NDJILI - - -187	LISBON - - - -188	SAN SALVADOR - - - -193
PORT BRAGG/PDPE - - - -137	LAS PALMAS - - - -187	LINJA, MALTA - - - -189	SANTA CRUZ - - - -193
PORT FUSTIS - - - -141	LUGA, MALTA - - - -187	MILDMHALL - - - -189	SANTIAGO - - - -193
PORT RUCKER - - - -144	LUXOR - - - -188	NAPLES - - - -189	SANTO DOMINGO - - - -194
GUANTANAMO BAY - - - -190	NIAMEY - - - -188	ORAN - - - -189	TALARA - - - -194
GUATEMALA CITY - - - -193	ORAN - - - -188	PORT LYAUTEY - - - -189	TOMCONTIN AB - - - -194
HAVANA - - - -190	PORT LYAUTEY - - - -188	PRESTWICK - - - -189	WILLENSTAD - - - -194
HONOLULU AFB - - - -163	ORFETS FIELD - - - -188	RAFIN MAIN - - - -189	
HUNTER AAF - - - -165	TUNIS - - - -188	ORFETS FIELD - - - -189	LISBON
JACKSONVILLE - - - -172		ORFETS FIELD - - - -189	ALGER - - - - - 36
KEY WEST - - - -179	LAJES FIELD		AVIANO AB - - - - 66
KIMBLEY AFB - - - -183	ALGER - - - - - 36		ATKINSON - - - - 62

[illegible]

NARSARSSUAK (CONT.)

GOOSE AFB - - - - -	-148
HAHN AB - - - - -	-156
HARMON AFB - - - - -	-159
KEFLAVIK - - - - -	-178
KINDLEY AFB - - - - -	-183
LAJES FIELD - - - - -	-189
LISBON - - - - -	-194
LORING AFB - - - - -	-196
MCGUIRE AFB - - - - -	-207
MILDENHALL - - - - -	-205
NEW CUMBERLAND - - - - -	-210
PRESTWICK - - - - -	-210
RHEIN MAIN - - - - -	-210
SONDRESTROM - - - - -	-210
STOCKHOLM - - - - -	-210
THULE - - - - -	-210
TORREJON - - - - -	-210
TROMSO - - - - -	-211
WESTOVER AFB - - - - -	-211
ZARAGOZA - - - - -	-211

NEW CUMBERLAND

ALBROOK AFB - - - - -	33
ARGENTIA NS - - - - -	55
BARRANQUILLA - - - - -	73
BRIDGETOWN - - - - -	89
CHERRY PT MCAS - - - - -	108
CORPUS CHRISTI - - - - -	111
EGLIN AFB - - - - -	124
ELLINGTON AFB - - - - -	128
ENGLAND AFB - - - - -	131
FORT BENNING - - - - -	135
FORT BRAGG/POPE - - - - -	138
FORT RUCKER - - - - -	144
FORTISHER - - - - -	146
GOOSE AFB - - - - -	148
GUANTANAMO BAY - - - - -	151
GUATAMALA CITY - - - - -	154
HARMON AFB - - - - -	159
HAVANA - - - - -	161
HOMESTEAD AFB - - - - -	163
HUNTER AAF - - - - -	166
JACKSONVILLE - - - - -	173
KEY WEST - - - - -	180
KINDLEY AFB - - - - -	183
KINGSTON - - - - -	185
LORING AFB - - - - -	196
MANAGUA - - - - -	201
NARSARSSUAK - - - - -	210
NEW ORLEANS - - - - -	211
PATRICK AFB - - - - -	211
PORT AU PRINCE - - - - -	211
RAMEY AFB - - - - -	211
SAN JOSE - - - - -	211

NEW CUMBERLAND (CONT.)

SAN SALVADOR - - - - -	-211
SANTO DOMINGO - - - - -	-212
SHAW AFB - - - - -	-212
SONDRESTROM - - - - -	-212
TONGONTIN AB - - - - -	-212
WESTOVER AFB - - - - -	-212
WILLEMSTAD - - - - -	-212

NEW ORLEANS

ALBROOK AFB - - - - -	33
ANDREWS AFB - - - - -	45
ARGENTIA NS - - - - -	55
BARRANQUILLA - - - - -	74
BOGOTA - - - - -	82
BRIDGETOWN - - - - -	90
CHERRY PT MCAS - - - - -	108
CORPUS CHRISTI - - - - -	111
DOVER AFB - - - - -	120
EGLIN AFB - - - - -	124
ELLINGTON AFB - - - - -	128
ENGLAND AFB - - - - -	131
FORT BENNING - - - - -	135
FORT BRAGG/POPE - - - - -	138
FORT EUSTIS - - - - -	141
FORT RUCKER - - - - -	144
GOOSE AFB - - - - -	148
GUANTANAMO BAY - - - - -	151
GUATAMALA CITY - - - - -	154
HARMON AFB - - - - -	159
HAVANA - - - - -	161
HOMESTEAD AFB - - - - -	164
HUNTER AAF - - - - -	166
JACKSONVILLE - - - - -	173
KEY WEST - - - - -	180
KINDLEY AFB - - - - -	183
KINGSTON - - - - -	185
LORING AFB - - - - -	196
MANAGUA - - - - -	201
MCGUIRE AFB - - - - -	202
MEDELLIN - - - - -	204
NEW CUMBERLAND - - - - -	211
PATRICK AFB - - - - -	212
PORT AU PRINCE - - - - -	212
RAMEY AFB - - - - -	212
SAN JOSE - - - - -	213
SAN SALVADOR - - - - -	213
SANTO DOMINGO - - - - -	213
SHAW AFB - - - - -	213
TONGONTIN AB - - - - -	213
WESTOVER AFB - - - - -	213
WILLEMSTAD - - - - -	213

NIAMEY

ACCRA - - - - -	20
-----------------	----

NIAMEY (CONT.)

ALGER - - - - -	37
ASCENSION ISLAND - - - - -	56
ATHENS - - - - -	59
BORDEAUX - - - - -	86
BRINDISI - - - - -	93
CAIRO - - - - -	97
DAKAR - - - - -	113
KANO - - - - -	175
KHARTOUM - - - - -	182
KINSHASA/NDJILI - - - - -	187
LAGOS - - - - -	188
LAS PALMAS - - - - -	190
LISBON - - - - -	194
LUQA, MALTA - - - - -	197
LUXOR - - - - -	199
NAPLES - - - - -	208
ORAN - - - - -	213
PORT LYAUTEY - - - - -	213
ROBERTS FIELD - - - - -	214
ROME - - - - -	214
TORREJON - - - - -	214
TUNIS - - - - -	214
ZARAGOZA - - - - -	214

NICOSIA

ABADAN - - - - -	19
ADDIS ABABA - - - - -	27
ADEN - - - - -	29
ALGER - - - - -	37
HAVANA - - - - -	41
AMMAN - - - - -	41
ANKARA - - - - -	49
ATHENS - - - - -	59
AVIANO AB - - - - -	66
BAGHDAD - - - - -	70
BITSBURG AB - - - - -	74
BORDEAUX - - - - -	86
BRINDISI - - - - -	93
CAIRO - - - - -	97
CHATEAUXROUX - - - - -	101
CHAUMONT - - - - -	104
DHAHRAN - - - - -	115
DIYARBAKIR - - - - -	117
HAHN AB - - - - -	156
ISTANBUL - - - - -	168
IZMIR - - - - -	170
KANO - - - - -	175
KARACHI - - - - -	176
KHARTOUM - - - - -	182
LUQA, MALTA - - - - -	198
LUXOR - - - - -	199
MILDENHALL - - - - -	205
MOSCOW - - - - -	207
NAPLES - - - - -	208
ORAN - - - - -	214

NICOSIA (CONT.)

PORT LYAUTEY - - - - -	-214
PRESTWICK - - - - -	-214
RHEIN MAIN - - - - -	-214
ROME - - - - -	-215
STOCKHOLM - - - - -	-215
TEHRAN - - - - -	-215
TEL AVIV - - - - -	-215
TORREJON - - - - -	-215
TUNIS - - - - -	-215
ZAHEDAN - - - - -	-215
ZARAGOZA - - - - -	-215

ORAN

ACCRA - - - - -	21
ADANA - - - - -	24
ALGER - - - - -	37
AMMAN - - - - -	41
ANKARA - - - - -	49
ATHENS - - - - -	59
AVIANO AB - - - - -	67
BITSBURG AB - - - - -	79
BORDEAUX - - - - -	86
BRINDISI - - - - -	93
CAIRO - - - - -	97
CHATEAUXROUX - - - - -	101
CHAUMONT - - - - -	104
DAKAR - - - - -	113
DIYARBAKIR - - - - -	117
HAHN AB - - - - -	156
ISTANBUL - - - - -	168
IZMIR - - - - -	170
KANO - - - - -	175
KEFLAVIK - - - - -	178
LAGOS - - - - -	188
LAJES FIELD - - - - -	189
LAS PALMAS - - - - -	191
LISBON - - - - -	195
LUQA, MALTA - - - - -	198
LUXOR - - - - -	199
MILDENHALL - - - - -	205
MOSCOW - - - - -	207
NAPLES - - - - -	209
NIAMEY - - - - -	213
NICOSIA - - - - -	214
PORT LYAUTEY - - - - -	215
PRESTWICK - - - - -	216
RHEIN MAIN - - - - -	216
ROBERTS FIELD - - - - -	216
ROME - - - - -	216
STOCKHOLM - - - - -	216
TEL AVIV - - - - -	216
TORREJON - - - - -	216
TUNIS - - - - -	216

PARAMARIBO		PATRICK AFB (CONT.)		PORT AU PRINCE (CONT.)		PRESTWICK (CONT.)	
ALBROOK AFB	- 33	KEY WEST	-180	MEDELLIN	-204	ANKARA	- 50
ANTOFAGAST	- 52	KINDLEY AFB	-184	NEW CUMBERLAND	-211	ARGENTIA NS	- 55
ATKINSON	- 63	KINGSTON	-186	NEW ORLEANS	-212	ATHENS	- 60
BARRANQUILLA	- 74	LORING AFB	-196	PARAMARIBO	-217	AVIANO AB	- 67
BELEN	- 76	MANAGUA	-201	PATRICK AFB	-218	BITBURG AB	- 79
BOGOTA	- 82	MCGUIRE AFB	-202	RAMEY AFB	-219	BORDEAUX	- 86
BRIDGETOWN	- 90	MEDELLIN	-204	SAN JOSE	-219	BRINDISI	- 94
GUANTANAMO BAY	-151	NEW CUMBERLAND	-211	SAN SALVADOR	-219	CHATEAUXROUX	-101
HAVANA	-161	NEW ORLEANS	-212	SHAW AFB	-219	CHAUMONT	-104
HOMESTEAD AFB	-164	PARAMARIBO	-217	TALARA	-219	FROBISHER	-146
KEY WEST	-180	PORT AU PRINCE	-218	TONGTIN AB	-219	GOOSE AB	-149
KINDLEY AFB	-184	RAMEY AFB	-218	WESTOVER AFB	-220	HAMN AB	-157
KINGSTON	-186	SAN JOSE	-218	WILLENSTAD	-220	HARMON AFB	-159
LA PAZ	-192	SAN SALVADOR	-218			ISTANBUL	-168
LIMA	-193	SANTO DOMINGO	-218	PORT LYAUTEY		IZMIR	-171
MANAGUA	-201	SHAW AFB	-218	ACCRA	- 21	KEFLAVIK	-178
MEDELLIN	-204	TALARA	-218	ALGER	- 38	LAJES FIELD	-189
PATRICK AFB	-217	TONGTIN AB	-219	ANKARA	- 49	LAS PALMAS	-191
PORT AU PRINCE	-217	WESTOVER AFB	-219	ATHENS	- 59	LISBON	-195
RAMEY AFB	-217	WILLENSTAD	-219	AVIANO AB	- 67	LUQA, MALTA	-198
RECIFF	-217			BITBURG AB	- 79	MILDENHALL	-206
RIO DE JANEIRO	-217	PORT AU PRINCE		BORDEAUX	- 86	MOSCOW	-207
SAN JOSE	-217	ALBROOK AFB	- 33	BRINDISI	- 94	NAPLES	-209
SANTA CRUZ	-217	ANDREWS AFB	- 46	CAIRO	- 98	NARSARSSUAK	-210
SANTO DOMINGO	-217	ARGENTIA NS	- 55	CHATEAUXROUX	-101	NICOSIA	-214
TALARA	-217	ATKINSON	- 63	CHAUMONT	-104	ORAN	-216
TONGTIN AB	-218	BARRANQUILLA	- 74	DAKAR	-113	PORT LYAUTEY	-220
WILLENSTAD	-218	BELEN	- 76	HAMN AB	-156	RHEIN MAIN	-221
		BOGOTA	- 83	ISTANBUL	-168	ROME	-221
PATRICK AFB		BRIDGETOWN	- 90	IZMIR	-171	SONDREYSTROM	-221
ALBROOK AFB	- 33	CHERRY PT MCAS	-108	KANO	-176	STOCKHOLM	-221
ANDREWS AFB	- 46	CORPUS CHRISTI	-112	KEFLAVIK	-178	THULE	-221
ARGENTIA NS	- 55	DOVER AFB	-121	LAGOS	-188	TORREJON	-221
ATKINSON	- 63	EGLIN AFB	-124	LAJES FIELD	-189	TRONSO	-221
BARRANQUILLA	- 74	ELLINGTON AFB	-128	LAS PALMAS	-191	TUNIS	-221
BOGOTA	- 82	ENGLAND AFB	-132	LISBON	-195	ZARAGOZA	-222
BRIDGETOWN	- 90	FORT BENNING	-135	LUQA, MALTA	-198		
CHERRY PT MCAS	-108	FORT BRAGG/POPE	-138	MILDENHALL	-206	RAMEY AFB	
CORPUS CHRISTI	-112	FORT EUSTIS	-141	NAPLES	-209	ALBROOK AFB	- 33
DOVER AFB	-120	FORT RUCKER	-144	NIAMEY	-213	ANDREWS AFB	- 46
EGLIN AFB	-124	GUANTANAMO BAY	-151	NICOSIA	-214	ARGENTIA NS	- 55
ELLINGTON AFB	-128	GUATAMALA CITY	-154	ORAN	-215	ATKINSON	- 63
ENGLAND AFB	-132	HARMON AFB	-159	PRESTWICK	-220	BARRANQUILLA	- 74
FORT BENNING	-135	HAVANA	-161	RHEIN MAIN	-220	BELEN	- 76
FORT BRAGG/POPE	-138	HOMESTEAD AFB	-164	ROBERTS FIELD	-220	BOGOTA	- 83
FORT EUSTIS	-141	HUNTER AAF	-166	ROME	-220	BRIDGETOWN	- 90
FORT RUCKER	-144	JACKSONVILLE	-173	STOCKHOLM	-220	CHERRY PT MCAS	-108
GOOSE AB	-149	KEY WEST	-180	TORREJON	-220	CORPUS CHRISTI	-112
GUANTANAMO BAY	-151	KINDLEY AFB	-184	TUNIS	-220	DOVER AFB	-121
GUATAMALA CITY	-154	KINGSTON	-186	ZARAGOZA	-221	EGLIN AFB	-124
HARMON AFB	-159	LIMA	-193			ELLINGTON AFB	-128
HAVANA	-161	LORING AFB	-196	PRESTWICK		ENGLAND AFB	-132
HOMESTEAD AFB	-164	MANAGUA	-201	ADANA	- 24	FORT BENNING	-135
HUNTER AAF	-166	MCGUIRE AFB	-202	ALGER	- 38	FORT BRAGG/POPE	-138

NAMEY AFB (CONT.)

FORT EUSTIS	-141
FORT RUCKER	-145
GUANTANAMO BAY	-151
GUAYAMA LA CITY	-154
HARMON AFB	-159
HAVANA	-162
HOMESTEAD AFB	-164
HUNTER AAF	-166
JACKSONVILLE	-173
KFY WEST	-180
KINDLEY AFB	-184
KINGSTON	-186
LIMA	-193
LORING AFB	-196
MANAGUA	-201
MCQUIRE AFB	-203
MEDELLIN	-204
NEW CUMBERLAND	-211
NEW ORLEANS	-212
PARAMARIBO	-217
PATRICK AFB	-218
PORT AU PRINCE	-219
SAN JOSE	-222
SAN SALVADOR	-222
SANTO DOMINGO	-222
SHAW AFB	-222
TALARA	-222
TONCONTIN AB	-222
WESTOVER AFB	-222
WILLEMSTAD	-222

RECIFE

ASCENSION ISLAND	-96
ATKINSON	-63
BELEM	-76
BRIDGETOWN	-90
DAKAR	-114
PARAMARIBO	-217
RIO DE JANEIRO	-223
ROBERTS FIELD	-223
SANTA CRUZ	-223

RHEIN MAIN

ADANA	-24
ALGER	-38
AMMAN	-42
ANKARA	-50
ATHENS	-60
AVIANO AB	-67
BAGHDAD	-70
BORDEAUX	-86
BRINDISI	-94
CAIRO	-98
CHATEAUBOUX	-101

RHEIN MAIN (CONT.)

CHAUMONT	-104
DIYARBAKIR	-117
ISTANBUL	-168
IZMIR	-171
KEFLAVIK	-178
LAJES FIELD	-189
LAS PALMAS	-191
LISBON	-195
LUQA, MALTA	-198
LUXOR	-200
MILDFMALL	-206
MOSCOW	-207
NAPLES	-209
NARSARSSUAK	-210
NICOSIA	-214
ORAN	-216
PORT LYAUTEY	-220
PRESTWICK	-221
ROME	-223
STOCKHOLM	-223
TEL AVIV	-223
TORREJON	-223
TROMSO	-223
TUNIS	-223
ZARAGOZA	-224

RIO DE JANEIRO

ANTOFAGAST	-52
ASCENSION ISLAND	-57
ATKINSON	-63
BELEM	-76
BUENOS AIRES	-95
LA PAZ	-197
PARAMARIBO	-217
RECIFE	-223
SANTA CRUZ	-224
SANTIAGO	-224

ROBERTS FIELD

ACCRA	-21
ALGER	-38
ASCENSION ISLAND	-57
DAKAR	-114
KANO	-176
KINSHASA/NDJILI	-187
LAGOS	-189
LAS PALMAS	-191
LISBON	-195
NAMBY	-214
ORAN	-216
PORT LYAUTEY	-220
RECIFE	-223

ROME

ARADAN	-19
ADANA	-24
ALGER	-38
AMMAN	-42
ANKARA	-50
ATHENS	-60
AVIANO AB	-67
BAGHDAD	-70
BITBURG AB	-79
BORDEAUX	-86
BRINDISI	-94
CAIRO	-98
CHATEAUBOUX	-101
CHAUMONT	-104
DIYARBAKIR	-117
HAMN AB	-157
ISTANBUL	-168
IZMIR	-171
KANO	-176
KEFLAVIK	-178
KHARTOUM	-182
LAJES FIELD	-189
LAS PALMAS	-191
LISBON	-195
LUQA, MALTA	-198
LUXOR	-200
MILDFMALL	-206
MOSCOW	-207
NAMBY	-214
NICOSIA	-215
ORAN	-216
PORT LYAUTEY	-220
PRESTWICK	-221
RHEIN MAIN	-223
STOCKHOLM	-224
TEHRAN	-224
TEL AVIV	-224
TORREJON	-224
TROMSO	-224
TUNIS	-224
ZARAGOZA	-225

SAN JOSE

ALBROOK AFB	-33
ANDREWS AFB	-46
ATKINSON	-63
BARRANQUILLA	-74
BOGOTA	-83
BRIDGETOWN	-90
CHERRY PT MCAS	-108
CORPUS CHRISTI	-112
DOVER AFB	-121
EGLIN AFB	-124
FLLINGTON AFB	-129

SAN JOSE (CONT.)

ENGLAND AFB	-132
FORT BENNING	-135
FORT BRAGG/POPE	-139
FORT EUSTIS	-142
FORT RUCKER	-145
GUANTANAMO BAY	-151
GUAYAMA LA CITY	-154
HAVANA	-162
HOMESTEAD AFB	-164
HUNTER AAF	-166
JACKSONVILLE	-173
KEY WEST	-180
KINDLEY AFB	-184
KINGSTON	-186
LA PAZ	-192
LIMA	-193
MANAGUA	-201
MCQUIRE AFB	-203
MEDELLIN	-204
NEW CUMBERLAND	-211
NEW ORLEANS	-213
PARAMARIBO	-217
PATRICK AFB	-218
PORT AU PRINCE	-219
RAMAY AFB	-222
SAN SALVADOR	-225
SANTO DOMINGO	-225
SHAW AFB	-225
TALARA	-225
TONCONTIN AB	-225
WILLEMSTAD	-225

SAN SALVADOR

ALBROOK AFB	-34
ANDREWS AFB	-46
ATKINSON	-64
BARRANQUILLA	-74
BOGOTA	-83
BRIDGETOWN	-90
CHERRY PT MCAS	-108
CORPUS CHRISTI	-112
DOVER AFB	-121
EGLIN AFB	-124
FLLINGTON AFB	-129
ENGLAND AFB	-132
FORT BENNING	-135
FORT BRAGG/POPE	-139
FORT EUSTIS	-142
FORT RUCKER	-145
GUANTANAMO BAY	-152
HAVANA	-162
HOMESTEAD AFB	-164
HUNTER AAF	-166
JACKSONVILLE	-173

SAN SALVADOR (CONT.)

KEY WEST - - - - -	-180
KINDLEY AFB - - - - -	-184
KINGSTON - - - - -	-186
LIMA - - - - -	-193
MANAGUA - - - - -	-201
MCGUIRE AFB - - - - -	-203
MEDELLIN - - - - -	-204
NEW CUMBERLAND - - - - -	-211
NEW ORLEANS - - - - -	-213
PATRICK AFB - - - - -	-218
PORT AU PRINCE - - - - -	-219
RAMEY AFB - - - - -	-222
SAN JOSE - - - - -	-225
SANTO DOMINGO - - - - -	-225
SHAW AFB - - - - -	-225
TALARA - - - - -	-226
WESTOVER AFB - - - - -	-226
WILLEMSTAD - - - - -	-226

SANTA CRUZ

ALBUQUERQUE - - - - -	34
ANTOFAGAST - - - - -	52
ATKINSON - - - - -	64
BARRANQUILLA - - - - -	74
BELEM - - - - -	76
BOGOTA - - - - -	83
BRIDGETOWN - - - - -	91
BUENOS AIRES - - - - -	95
LA PAZ - - - - -	-192
LIMA - - - - -	-193
MEDELLIN - - - - -	-204
PARAMARIBO - - - - -	-217
RECIFE - - - - -	-223
RIO DE JANEIRO - - - - -	-224
SANTIAGO - - - - -	-226
TALARA - - - - -	-226
WILLEMSTAD - - - - -	-226

SANTIAGO

ANTOFAGAST - - - - -	52
BUENOS AIRES - - - - -	95
CHABUNCA - - - - -	99
LA PAZ - - - - -	-192
LIMA - - - - -	-193
RIO DE JANEIRO - - - - -	-224
SANTA CRUZ - - - - -	-226
TALARA - - - - -	-226

SANTO DOMINGO

ALBUQUERQUE AFB - - - - -	34
ANDREWS AFB - - - - -	46
ARGENTIA NS - - - - -	55
ATKINSON - - - - -	64
BARRANQUILLA - - - - -	74

SANTO DOMINGO (CONT.)

BELEM - - - - -	76
BOGOTA - - - - -	83
BRIDGETOWN - - - - -	91
CHERRY PT MCAS - - - - -	-108
CORPUS CHRISTI - - - - -	-112
DOVER AFB - - - - -	-121
EGLIN AFB - - - - -	-125
ELLINGTON AFB - - - - -	-129
ENGLAND AFB - - - - -	-132
FORT BENNING - - - - -	-135
FORT BRAGG/POPE - - - - -	-139
FORT EUSTIS - - - - -	-142
FORT RUCKER - - - - -	-145
GUANTANAMO BAY - - - - -	-152
GUAYAMA LA CITY - - - - -	-154
HARMON AFB - - - - -	-160
HAVANA - - - - -	-162
HOMESTEAD AFB - - - - -	-164
HUNTER AFB - - - - -	-167
JACKSONVILLE - - - - -	-173
KEY WEST - - - - -	-180
KINDLEY AFB - - - - -	-184
KINGSTON - - - - -	-186
LIMA - - - - -	-194
LORING AFB - - - - -	-196
MANAGUA - - - - -	-201
MCGUIRE AFB - - - - -	-203
MEDELLIN - - - - -	-204
NEW CUMBERLAND - - - - -	-212
NEW ORLEANS - - - - -	-213
PARAMARIBO - - - - -	-217
PATRICK AFB - - - - -	-218
RAMEY AFB - - - - -	-222
SAN JOSE - - - - -	-225
SAN SALVADOR - - - - -	-225
SHAW AFB - - - - -	-226
TALARA - - - - -	-226
TORONTO AFB - - - - -	-227
WESTOVER AFB - - - - -	-227
WILLEMSTAD - - - - -	-227

SHAW AFB

ALBUQUERQUE AFB - - - - -	34
ANDREWS AFB - - - - -	46
ARGENTIA NS - - - - -	55
BARRANQUILLA - - - - -	75
BOGOTA - - - - -	83
BRIDGETOWN - - - - -	91
CHERRY PT MCAS - - - - -	-109
CORPUS CHRISTI - - - - -	-112
DOVER AFB - - - - -	-121
EGLIN AFB - - - - -	-125
ELLINGTON AFB - - - - -	-129
ENGLAND AFB - - - - -	-132

SHAW AFB (CONT.)

FORT BENNING - - - - -	-136
FORT EUSTIS - - - - -	-142
FORT RUCKER - - - - -	-145
FROBISHER - - - - -	-147
GOOSE AR - - - - -	-149
GUANTANAMO BAY - - - - -	-152
GUAYAMA LA CITY - - - - -	-154
HARMON AFB - - - - -	-160
HAVANA - - - - -	-162
HOMESTEAD AFB - - - - -	-164
JACKSONVILLE - - - - -	-173
KEY WEST - - - - -	-181
KINDLEY AFB - - - - -	-184
KINGSTON - - - - -	-186
LORING AFB - - - - -	-197
MANAGUA - - - - -	-202
MCGUIRE AFB - - - - -	-203
MEDELLIN - - - - -	-205
NEW CUMBERLAND - - - - -	-212
NEW ORLEANS - - - - -	-213
PATRICK AFB - - - - -	-218
PORT AU PRINCE - - - - -	-219
RAMEY AFB - - - - -	-222
SAN JOSE - - - - -	-225
SAN SALVADOR - - - - -	-225
SANTO DOMINGO - - - - -	-226
TORONTO AFB - - - - -	-227
WESTOVER AFB - - - - -	-227
WILLEMSTAD - - - - -	-227

SONDRSTROM

ANDREWS AFB - - - - -	46
ARGENTIA NS - - - - -	56
BITBURG AB - - - - -	79
DOVER AFB - - - - -	-121
FORT EUSTIS - - - - -	-142
FROBISHER - - - - -	-147
GOOSE AR - - - - -	-149
HARMON AFB - - - - -	-157
HARMON AFB - - - - -	-160
KEFLAVIK - - - - -	-178
LAJES FIELD - - - - -	-190
LORING AFB - - - - -	-197
MCGUIRE AFB - - - - -	-203
MILFENHALL - - - - -	-206
NARSARSSUAK - - - - -	-210
NEW CUMBERLAND - - - - -	-212
PRESTWICK - - - - -	-221
STOCKHOLM - - - - -	-227
THULE - - - - -	-227
TROMSO - - - - -	-227
WESTOVER AFB - - - - -	-228

STOCKHOLM

ADANA - - - - -	24
ALGER - - - - -	38
AMMAN - - - - -	42
ANKARA - - - - -	50
ATHENS - - - - -	60
AVIANO AB - - - - -	67
BAGHDAD - - - - -	70
BITBURG AB - - - - -	79
BORDEAUX - - - - -	86
BRINDISI - - - - -	94
CAIRO - - - - -	98
CHATEAUXROUX - - - - -	-101
CHAMMONT - - - - -	-104
DIYARRAKIR - - - - -	-117
HAMN AB - - - - -	-157
ISTANBUL - - - - -	-169
IZMIR - - - - -	-171
KEFLAVIK - - - - -	-178
LISBON - - - - -	-195
LUGA, MALTA - - - - -	-198
MILFENHALL - - - - -	-206
MOSCOW - - - - -	-207
NAPLES - - - - -	-209
NARSARSSUAK - - - - -	-210
NICOSIA - - - - -	-215
ORAN - - - - -	-216
PORT LYAUTEY - - - - -	-220
PRESTWICK - - - - -	-221
RHEIN MAIN - - - - -	-223
ROME - - - - -	-224
SONDRSTROM - - - - -	-227
TEHRAN - - - - -	-228
TFL AVIV - - - - -	-228
THULE - - - - -	-228
TORONTO - - - - -	-228
TROMSO - - - - -	-228
TUNIS - - - - -	-228
ZARAGOZA - - - - -	-228

TALARA

ALBUQUERQUE AFB - - - - -	34
ANTOFAGAST - - - - -	52
ATKINSON - - - - -	64
BARRANQUILLA - - - - -	75
BELEM - - - - -	76
BOGOTA - - - - -	83
BRIDGETOWN - - - - -	91
GUANTANAMO BAY - - - - -	-152
GUAYAMA LA CITY - - - - -	-154
HAVANA - - - - -	-162
HOMESTEAD AFB - - - - -	-165
KEY WEST - - - - -	-181
KINGSTON - - - - -	-186
LA PAZ - - - - -	-192

TALARA (CONT.)		TEL AVIV (CONT.)		TONCONTIN AR (CONT.)		TORREJON (CONT.)	
LIMA	-194	BITHURG AB	79	ELLINGTON AFB	-129	MILDENHALL	-206
MANAGUA	-202	BORDEAUX	87	ENGLAND AFB	-132	MOSCOW	-208
MEDELLIN	-205	BRINDISI	94	FORT BENNING	-136	NAPLES	-209
PARAMARIBO	-217	CAIRO	98	FORT BRAGG/POPE	-139	NARSARSSUAK	-210
PATRICK AFB	-218	CHATEAUXROUX	-102	FORT FUSTIS	-142	NIAMEY	-214
PORT AU PRINCE	-219	CHAUMONT	-104	FORT RUCKER	-145	NICOSIA	-215
RAMEY AFB	-222	DHAKHAN	-115	GUANTANAMO BAY	-152	ORAN	-216
SAN JOSE	-225	DIYARRAKIR	-117	GUAYMALA CITY	-155	PORT LYAUTEY	-220
SAN SALVADOR	-226	HAMN AB	-157	HAVANA	-162	PRESTWICK	-221
SANTA CRUZ	-226	ISTANBUL	-169	HOMESTEAD AFB	-165	RHEIN MAIN	-223
SANTIAGO	-226	IZMIR	-171	HUNTER AAF	-167	ROME	-224
SANTO DOMINGO	-226	KANO	-176	JACKSONVILLE	-174	STOCKHOLM	-228
TONCONTIN AR	-228	KARACHI	-177	KFY WEST	-181	TEL AVIV	-229
WILLENSTAD	-229	KHARTOUM	-182	KINDLEY AFB	-184	TRONSO	-230
TEHRAN		LUQA, MALTA	-198	KINGSTON	-187	TUNIS	-230
ARADAN	19	LUXOR	-200	LIMA	-194	ZARAGOZA	-230
ADANA	24	MILDENHALL	-206	MCGUIRE AFB	-203	TRONSO	
ADDIS ABABA	27	MOSCOW	-208	MEDELLIN	-205	ANKARA	30
ADEN	29	NAPLES	-209	NEW CUMBERLAND	-212	ATHENS	60
AMMAN	42	NICOSIA	-215	NFW ORLEANS	-213	AVIANO AB	68
ANKARA	50	ORAN	-216	PARAMARIBO	-218	BITHURG AB	80
ATHENS	60	RHEIN MAIN	-223	PATRICK AFB	-219	BORDEAUX	87
AVIANO AB	67	ROME	-224	PORT AU PRINCE	-219	BRINDISI	94
BAGHDAD	70	STOCKHOLM	-228	RAMEY AFB	-222	CHATEAUXROUX	-102
BRINDISI	94	TEHRAN	-229	SAN JOSE	-225	CHAUMONT	-105
CAIRO	98	TORREJON	-227	SANTO DOMINGO	-227	FRIDISHER	-147
DHAKHAN	-115	TUNIS	-229	SHAW AFB	-227	HAMN AB	-157
DIYARRAKIR	-117	ZAHEDAN	-229	TALARA	-228	ISTANBUL	-169
ISTANBUL	-169	ZARAGOZA	-229	WESTOVER AFB	-230	IZMIR	-171
IZMIR	-171	THULE		WILLENSTAD	-230	KEFLAVIK	-179
KARACHI	-177	ARGENTIA NS	56	TORREJON		MILDENHALL	-206
KHARTOUM	-182	FRIDISHER	-147	ADANA	25	MOSCOW	-208
LUQA, MALTA	-198	GUNSF AFB	-149	ALGER	38	NAPLES	-209
LUXOR	-200	HARMON AFB	-160	AMMAN	42	NARSARSSUAK	-211
MOSCOW	-208	KEFLAVIK	-178	ANKARA	50	PRESTWICK	-221
NAPLES	-209	LORING AFB	-197	ATHENS	60	RHEIN MAIN	-223
NICOSIA	-215	NARSARSSUAK	-210	AVIANO AB	67	ROME	-224
ROME	-224	PRESTWICK	-221	BITHURG AB	79	SONDRESTROM	-227
STOCKHOLM	-228	SONDRESTROM	-227	BORDEAUX	87	STOCKHOLM	-228
TEL AVIV	-229	STOCKHOLM	-228	BRINDISI	94	THULE	-229
TUNIS	-229	TRONSO	-229	CAIRO	98	TORREJON	-230
ZAHEDAN	-229	TONCONTIN AR		CHATEAUXROUX	-102	TUNIS	-230
TEL AVIV		ALABAMA AFB	34	CHAUMONT	-104	ZARAGOZA	-230
ARADAN	19	ANDREWS AFB	46	DAKAR	-114	TUNIS	
ADANA	25	ATKINSON	64	HAMN AB	-157	ARADAN	19
ADDIS ABABA	27	BARRANQUILLA	75	ISTANBUL	-169	ACCRA	21
ADEN	29	BOGOTA	83	IZMIR	-171	ADANA	25
ALGER	38	BRIDGETOWN	91	KANO	-176	ALGER	38
ANKARA	50	CHEFNEY PT MCAS	-109	KEFLAVIK	-179	AMMAN	42
ATHENS	60	CORPUS CHRISTI	-112	LAFYS FIELD	-190	ANKARA	50
AVIANO AB	67	DOVER AFB	-121	LAS PALMAS	-191	ATHENS	60
BAGHDAD	70	EGLIN AFB	-125	LISBON	-195	AVIANO AB	68
				LUQA, MALTA	-199		

TUNIS (CONT.)

BAGHDAD	-	-	-	-	70
BITBURG AB	-	-	-	-	80
BRUNEAU	-	-	-	-	87
BRINDISI	-	-	-	-	95
CAIRO	-	-	-	-	98
CHATEAUBRIANT	-	-	-	-	102
CHAUMONT	-	-	-	-	105
DAKAR	-	-	-	-	114
DIYARBAKIR	-	-	-	-	118
HAMM AB	-	-	-	-	157
ISTANBUL	-	-	-	-	169
IZMIR	-	-	-	-	172
KANO	-	-	-	-	176
KHARTOUM	-	-	-	-	182
LAGOS	-	-	-	-	188
LAJES FIELD	-	-	-	-	190
LAS PALMAS	-	-	-	-	191
LISBON	-	-	-	-	195
LUQA, MALTA	-	-	-	-	199
LUNDA	-	-	-	-	200
MILNEMALL	-	-	-	-	207
MOSCOW	-	-	-	-	208
NAPLES	-	-	-	-	210
NIAMEY	-	-	-	-	214
NICOSIA	-	-	-	-	215
ORAN	-	-	-	-	216
PORT LYAUTEY	-	-	-	-	220
PRESTWICK	-	-	-	-	221
RHEIN MAIN	-	-	-	-	223
ROME	-	-	-	-	224
STOCKHOLM	-	-	-	-	228
TEHRAN	-	-	-	-	229
TEL AVIV	-	-	-	-	229
TORREJON	-	-	-	-	230
TAMBO	-	-	-	-	230
ZARAGUZA	-	-	-	-	230

WESTOVER AFB

ANDREWS AFB	-	-	-	-	47
ARGENTIA MS	-	-	-	-	56
BARRANQUILLA	-	-	-	-	75
BRIDGEFORD	-	-	-	-	91
CHERRY PT MCAS	-	-	-	-	109
COMBUS CHRISTI	-	-	-	-	112
DAVIA AFB	-	-	-	-	121
EL AL AFB	-	-	-	-	125
ELLINGTON AFB	-	-	-	-	129
ENGLAND AFB	-	-	-	-	132
PORT RENNING	-	-	-	-	136
PORT BRAGG/PTDF	-	-	-	-	139
PORT RUSTIS	-	-	-	-	142
PORT RUCKER	-	-	-	-	145
PORTISWICK	-	-	-	-	147
GRIF AFB	-	-	-	-	149

WESTOVER AFB (CONT.)

GUANTANAMO BAY	-	-	-	-	152
GUAYAMA CITY	-	-	-	-	155
HARMON AFB	-	-	-	-	160
HAVANA	-	-	-	-	162
HOMESTEAD AFB	-	-	-	-	164
HUNTER AFB	-	-	-	-	167
JACKSONVILLE	-	-	-	-	174
KEY WEST	-	-	-	-	181
KINDLEY AFB	-	-	-	-	185
KINGSTON	-	-	-	-	187
LORING AFB	-	-	-	-	197
MANAGUA	-	-	-	-	202
MCGUIRE AFB	-	-	-	-	203
MARSARSSUAK	-	-	-	-	211
NFM CUMBERLAND	-	-	-	-	212
NFM ORLEANS	-	-	-	-	213
PATRICK AFB	-	-	-	-	219
PORT AU PRINCE	-	-	-	-	220
RAMEY AFB	-	-	-	-	222
SAN SALVADOR	-	-	-	-	226
SANTO DOMINGO	-	-	-	-	227
SHAW AFB	-	-	-	-	227
SOMERSETTOWN	-	-	-	-	228
TOMCONTIN AB	-	-	-	-	230
WILLENSTAD	-	-	-	-	230

WILLENSTAD

ALLAHOOD AFB	-	-	-	-	34
ANDREWS AFB	-	-	-	-	47
ATKINSON	-	-	-	-	64
BARRANQUILLA	-	-	-	-	75
BELEN	-	-	-	-	77
BONITA	-	-	-	-	84
BRIDGEFORD	-	-	-	-	91
CHERRY PT MCAS	-	-	-	-	109
COMBUS CHRISTI	-	-	-	-	112
DAVIA AFB	-	-	-	-	121
EL AL AFB	-	-	-	-	125
ELLINGTON AFB	-	-	-	-	129
ENGLAND AFB	-	-	-	-	132
PORT RENNING	-	-	-	-	136
PORT BRAGG/PTDF	-	-	-	-	139
PORT RUSTIS	-	-	-	-	142
PORT RUCKER	-	-	-	-	145
GUANTANAMO BAY	-	-	-	-	152
GUAYAMA CITY	-	-	-	-	155
HAVANA	-	-	-	-	162
HOMESTEAD AFB	-	-	-	-	164
HUNTER AFB	-	-	-	-	167
JACKSONVILLE	-	-	-	-	174
KEY WEST	-	-	-	-	181
KINDLEY AFB	-	-	-	-	185
KINGSTON	-	-	-	-	187
LA PAZ	-	-	-	-	192

WILLENSTAD (CONT.)

LIMA	-	-	-	-	194
MANAGUA	-	-	-	-	202
MCGUIRE AFB	-	-	-	-	203
MEDELLIN	-	-	-	-	205
NFM CUMBERLAND	-	-	-	-	212
NFM ORLEANS	-	-	-	-	213
PARAMARIBO	-	-	-	-	218
PATRICK AFB	-	-	-	-	219
PORT AU PRINCE	-	-	-	-	220
RAMEY AFB	-	-	-	-	222
SAN JOSE	-	-	-	-	225
SAN SALVADOR	-	-	-	-	226
SANTA CRUZ	-	-	-	-	226
SANTO DOMINGO	-	-	-	-	227
SHAW AFB	-	-	-	-	227
TALARA	-	-	-	-	229
TOMCONTIN AB	-	-	-	-	230
WESTOVER AFB	-	-	-	-	230

ZARAGUZA

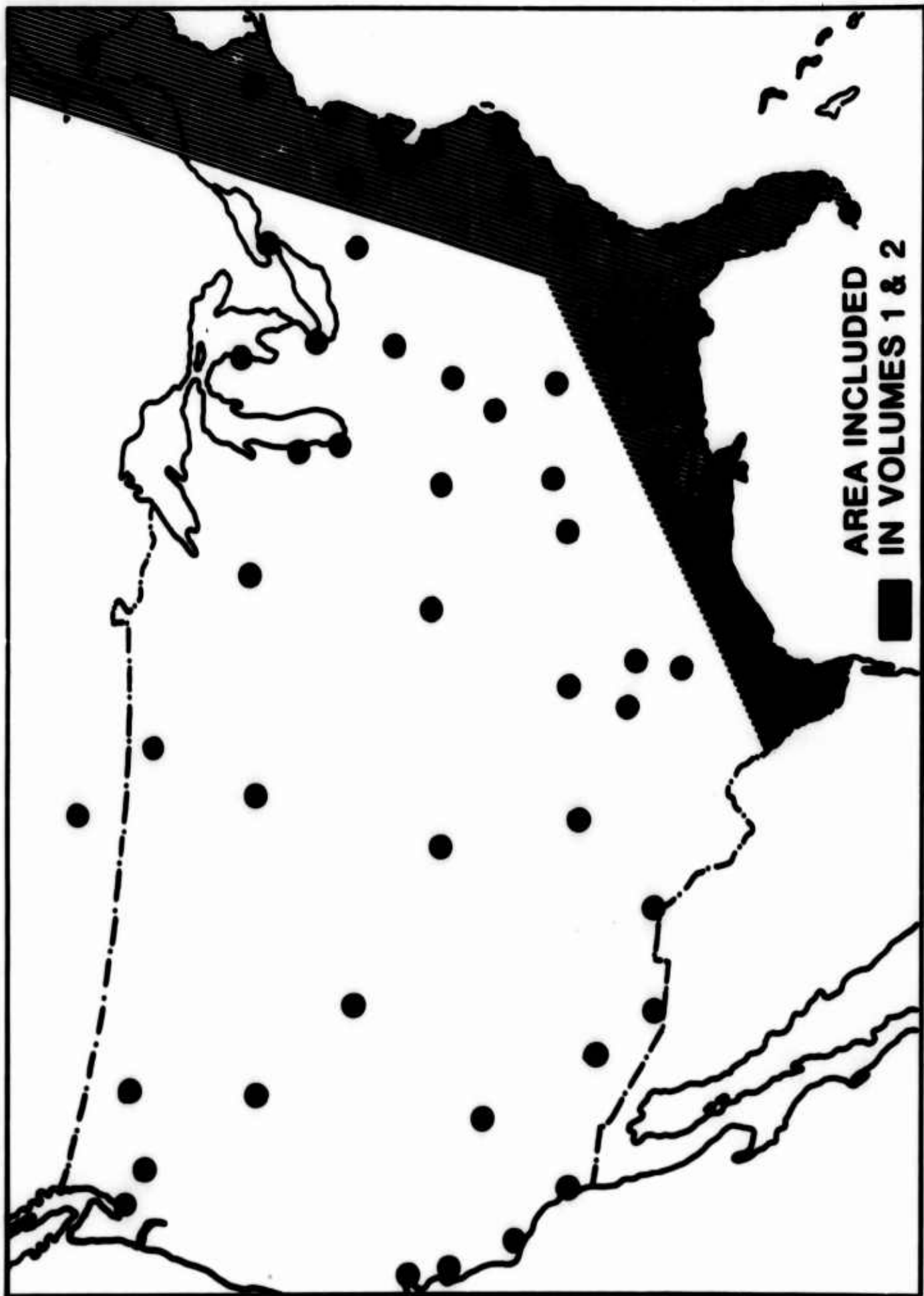
ARADAN	-	-	-	-	19
ADAMA	-	-	-	-	25
ADONIS AGARA	-	-	-	-	27
ADEN	-	-	-	-	29
AMMAN	-	-	-	-	42
AMMANA	-	-	-	-	51
ATHENS	-	-	-	-	61
BAGHDAD	-	-	-	-	70
CAIRO	-	-	-	-	98
DHAKRAH	-	-	-	-	110
DIYARBAKIR	-	-	-	-	118
ISTANBUL	-	-	-	-	169
IZMIR	-	-	-	-	172
KARACHI	-	-	-	-	177
KHARTOUM	-	-	-	-	182
LUNDA	-	-	-	-	200
MOSCOW	-	-	-	-	208
NICOSIA	-	-	-	-	215
TEHRAN	-	-	-	-	229
TEL AVIV	-	-	-	-	229

ZARAGUZA

ADAMA	-	-	-	-	25
ALGER	-	-	-	-	30
AMMAN	-	-	-	-	42
AMMANA	-	-	-	-	51
ATHENS	-	-	-	-	61
AVIATION AB	-	-	-	-	68
BITBURG AB	-	-	-	-	87
BRINDISI	-	-	-	-	95
CAIRO	-	-	-	-	98
CHATEAUBRIANT	-	-	-	-	102
CHAUMONT	-	-	-	-	105

ZARAGUZA (CONT.)

DAKAR	-	-	-	-	114
DIYARBAKIR	-	-	-	-	118
HAMM AB	-	-	-	-	157
ISTANBUL	-	-	-	-	169
IZMIR	-	-	-	-	172
KANO	-	-	-	-	176
KEFLAVIK	-	-	-	-	179
LAJES FIELD	-	-	-	-	190
LAS PALMAS	-	-	-	-	191
LISBON	-	-	-	-	195
LUQA, MALTA	-	-	-	-	199
LUNDA	-	-	-	-	200
MILNEMALL	-	-	-	-	207
MOSCOW	-	-	-	-	208
NAPLES	-	-	-	-	210
NIAMEY	-	-	-	-	214
NICOSIA	-	-	-	-	215
ORAN	-	-	-	-	216
PORT LYAUTEY	-	-	-	-	220
PRESTWICK	-	-	-	-	221
RHEIN MAIN	-	-	-	-	223
ROME	-	-	-	-	224
STOCKHOLM	-	-	-	-	228
TEL AVIV	-	-	-	-	229
TORREJON	-	-	-	-	230
TAMBO	-	-	-	-	230
TUNIS	-	-	-	-	230



AREA INCLUDED
IN VOLUMES 1 & 2